Chapter 10

Utilitarian Electronics

Portrait mit Cage und Stockhausen (Barlow und Kagel sind auch dabei)

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Approach to Electronics

This chapter will discuss the electronic music of Christopher Fox from a nodal perspective. In a previous article\(^1\) I discussed nodalism as a means of understanding creativity and culture after post-modernism. The nodal model enables us to view the composer as a node within a larger network. This network is dynamic and can comprise any other styles, composers, ideas, or as Richard Dawkins would term them – memes\(^2\), that can be freely drawn together. We may understand Fox as a node within a network of contemporary composers, as well as considering the nodal connections he makes within individual works to other music, art, literature and culture more widely. This model can demonstrate the plurality of sources that Fox draws upon and the startling surface differences that result in his music whilst demonstrating a core compositional approach to his music.


An important element in the nodal model I propose is that of a sense of local hierarchy. Unlike the planar rhizomatic model of Deleuze and Guattari\(^3\), nodalism is a fluid and dynamic system in which a local hierarchy of nodes exists, demonstrating the predominant ideas or elements within a work. Fox is a nodal composer par excellence, equally able to appraise modernism and postmodernism from a contemporary standpoint as well as historical practice drawing influences from these in a neutral but knowing manner, without aligning himself to any particular musical ideology.

In the early part of his career Fox’s music was variously labeled minimal, experimental, complex as well as ‘senile’ and ‘like a steamroller’\(^4\). Now, with a significant body of extant work, we can appreciate that Fox’s work is all of these and that they represent different facets of his musical personality with groups of works coalescing around certain types of nodal practice.

In this chapter I will concentrate on three of these nodes in particular. The first node concerns a group of works for instruments and electronics. These works reflect Fox’s use of found sound and synthesized materials, exemplifying the composer’s approach to thinking about electronics which clearly differentiates him from the predominant late 20\(^{th}\) century aesthetics surrounding, and developing from, both the GRM (Groupe de Recherches Musicales) and IRCAM (Institut de Recherche et Coordination Acoustique/Musique). The second node demonstrates his use of collage and focuses

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\(^4\) See Christopher Fox biography in the liner note to *Inner*, (Metier: MSV CD92059, 2001).
predominantly on the *MERZsonata* (1993) and *Cylinders Barn, 1947* (1993) from the Hörspiel *Three Constructions after Kurt Schwitters*. The final node focuses on a more recent group of works for instruments and electronics whose harmonic foundation is generated from the harmoniad – a system developed by Fox to generate microtonal harmony based on related frequency ratios as opposed to fixed third-, quarter- or sixth-tone scale-steps. The harmoniad is an example of an abstract nodal system operating within Fox’s works themselves. The system enables the composer to establish a local hierarchy of pitch within the harmoniad from a centre pitch and its satellites, to further secondary satellite pitches.

Although Fox is primarily an instrumental composer, I believe that his electronic music, currently about one sixth of his oeuvre, displays the most concentrated expressions of his interests and working methods. Like any nodal map, the central ground illustrates core activity, where much of the work is located. Fox is widely known for his ensemble and chamber works, however, it is the edges of this nodal activity, where things start to become more extreme, that are of real interest. In presenting Fox as a nodal composer I want to demonstrate how his work draws on, and reconciles seemingly disparate elements from the experimentalism of John Cage, the formal rigour and collage techniques of Stockhausen, the unique approach to tonality, microtonality and rhythm of Clarence Barlow as well as the music theatre works of Mauricio Kagel. There are of course other composers important to Fox such as Philip Glass, Steve Reich, Christian Wolff and Igor Stravinsky but these can be considered satellite composers – ever-present at the periphery.
In addition to the aforementioned composers, Fox has drawn on science *Heliotropes* and *für Johannes Keppler*), art and oral documentary (*Three Constructions after Kurt Schwitters* and *The Wedding at Cana*), geology and numerology (*stone.wind.rain.sun* and *Terra Incognita*), poetry (*The Dark Roads* and *Sea to the West*), recording technology (*re:play*) and acoustic phenomena (*Roger go to yellow three*). The conscious drawing together of elements is an important part of Fox’s creative process. In the notes to his CD *You, Us, Me* (1999) Fox writes that all of the works have a relationship to the work of other artists and that,

>This sort of exchange across time and media is important for me as a means of placing myself within specific histories… The pursuit of originality has always struck me as a peculiarly vain and foolish quest; after all, many of the most original artists of the 20th century… have been those who most consciously drew our attention to their borrowings. On the other hand I’m not interested in art that only exists as an intertextual *I-Spy* – the work must speak for itself and not just as a collage of references for a knowing audience.5

Fox’s use of collage recalls that of Kagel, (the inspiration and dedicatee of *darkly* (1981)), who discusses his own use of such extra-musical materials and found sounds as “strict composition with elements which are not themselves pure.”6 This deliberately analytical perspective allows Fox not only to engage with specific histories but also to revaluate them and recast their essence within his own musical frame. In interview with the author Fox states that, “One cannot reach a certain age and know lots of music without knowing what you are up to… there is a level at some

5 Christopher Fox. Liner note to ‘MERZsonata’ on *You, Us, Me* (Metier: MSV CD92031, 1999).

point of being quite self-conscious – this is combining the post-modern collagist idea and modernism.” For Fox, the post-modernist sensibility is not as differentiated from modernism as most theorists would have us believe. Unbound to, and often resistant to musical ideology, Fox cannot see any reason for not making use of all musical elements at his disposal. Later in the same interview Fox questions, “Why would you want to restrict yourself to just writing angular music with complicated rhythmic relationships and never ever have an open fifth and a beautifully tuned third above that? I want to do it all.” This sense of openness and inclusivity is again reminiscent of Kagel who in conversation with Bruce Duffie stated that, “It is a mistake to have rules, or to have a recipe… I invent for me the non-conventions which eventually are also conventions.” Fox’s own devising of non-conventions extends from the harmoniad system to specific works, such as *Straight Lines in Broken Times* of which he writes,

> I have tried to imagine a quite other musical tradition within which my piece would be regarded as unexceptional, indeed classical. I hear the piece not as a perverse denial of hundreds of years of musical tradition but as the only representative of a parallel musical universe in which, while there may be cellos tuned in fifths, and melodies, and modulations, their functions are subtly different.

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7 Interview with Christopher Fox and the author (5 December 2013).

8 ibid.7


10 Christopher Fox. Liner note to ‘chant suspendu’ on *Inner* (Metier: MSV CD92059, 2001).
Kagel’s thinking is obviously influential on Fox’s music theatre works, but also extends to what constitutes musical material and how things can be put together. For Kagel absolutely nothing was off limits. In his work all types of music are utilized from folk, tango and pop music rhythms to found concrete sounds and synthesized materials. Furthermore, unlike Cage who would often subject such found materials to chance techniques and so deconstruct them, Kagel and Fox allow the listener to identify them clearly. Fox considers Cage too ideological in this sense. For Fox, who rarely transforms his found sounds (apart from editing), there is here a strong link to the use of collage in the visual arts and the resulting revelation in the nature of ‘things’. Fox cites Schwitters’s use of bus tickets in his collages as an example, that they are both a pink oblong and a bus ticket. Such found objects break down the barriers between life and art and changes how you think about each of them. Fox also cannot imagine anything being off limits and like Kagel is keen to interrogate the cultural relevance of music in society. Similarly, there is a duality in both composers’ music in which collage, humour, and playfulness are pitted alongside intellectual rigour and seriousness

In conversation with James Weeks on the occasion of his 50th birthday, Fox stated that, “I still feel that I’m discovering new things to do and learning all the time from other music and musicians.” This is why Fox’s work remains so vital. As an outward facing composer actively drawing different nodes from a multitude of disciplines, Fox

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resolutely refuses to construct fences around his practice. He recognizes that there are parallel musical avant-gardes and progressive musical tendencies in other fields of musical activity and he is interested in exploring them all. It is this dynamic exploration of nodal networks that is, for Fox, what being an experimental composer is about. If there is a Fox style, it is in how he approaches musical materials – found or original – rather than a sounding homogeneity between works, allied with an antirhetorical presentation of this material. For Fox, the material simply is what it is - it does no need to be transformed into anything else.

Fox states that the “whole question about the encounter with material is crucial to how I work and it’s inextricably linked with how I try to encounter the world – as consciously and presently as possible”\(^\text{13}\). In Fox’s work there is a Bergsonian ‘nowness’\(^\text{14}\). As everything therefore has an artistic potentiality, it is how Fox chooses to frame elements and draw them together in time and in doing so, the ability to invest elemental material with richness that is of importance. In his interview with James Weeks, Fox comments that “It seems to me that these ideas, of celebrating the ‘ordinary’ with the same delight as more precious materials, are fundamentally both humane and democratic.”\(^\text{15}\) Here Fox is like the Bauhaus photographer László Moholy-Nagy whose pictures of everyday objects encourage us to appreciate the

\(^{13}\) ibid.12

\(^{14}\) Bergson (in Matter and Memory (translated by N. M. Paul and W. S. Palmer) London: George Allen and Unwin, 1911) suggested that “The duration lived by our consciousness is a duration with its own determined rhythm, a duration very different from the time of the physicist… There may be as many tensions of duration as there are degrees of consciousness.” p.272. Further, Grünbaum (in ‘The status of temporal becoming’ in J. Zeman (Ed.), Time in Science and Philosophy (pp. 67-87). Amsterdam: Czechoslovak Academy of Sciences, 1971) writes that “The nowness of events is generated by our conceptually awareness of them… nowness (and thereby pastness and futurity) are features of events as experienced conceptually” p.78-79.

\(^{15}\) ibid.12
strange complexity in the habitual\textsuperscript{16}. In presenting sounds as themselves rather than transforming them, Fox is interested not only in the materials in themselves but also in the relationship through temporal placement and juxtaposition that they have with other materials. The presentation of, and reflection on sound objects over and over facilitates an appreciation of how their meaning changes in differing contexts and how one’s perception of them is altered. Time for the nature and essence of materials to be perceived is important in Fox’s work and explains the block-like structure in many of his works. Often, as in \textit{ZONE} (2002-4) and \textit{comme see paroles} (2006-8) each block of musical material is characterised by one type of activity or musical behaviour. Extended periods of such activity bring into focus different aspects of the material. The assembly of such blocks is akin to large-scale collage rather than the counterpointing of musical materials through simultaneous presentation.

Interestingly, Fox cites his influences as not only major artistic movements in the 20\textsuperscript{th} Century but also social democracy and northern-ness reinforcing the sentiments expressed in the interview with James Weeks cited above. He also writes of his series of ‘compendium’ pieces (large scale multi-part works) that they reflect “my interest in the multidimensionality of the world”\textsuperscript{17} and like Christian Wolff and Kagel, that music is a social art and that the realization of his work by performers is a collaborative act of creating and sharing an event in time. This sense of social democracy is also evident in Fox’s thinking about his audience and is why he has never written a large-scale piece for symphony orchestra or an opera. Fox in interview says that,

\textsuperscript{16} See particularly Moholy-Nagy’s photograms produced in the 1920s-1040s.

\textsuperscript{17} ibid.12
...you might produce this wonderfully self-contained piece of work – but the people who experience it are going to go out of the building and into their lives and even while they were listening to it they were thinking about 4000 other things... You have to be aware of this. Knowing that this is going on and still putting a work in front of people requires a huge arrogance. It is a safety blanket to say ‘this is what my work is like this is what I do’… it is a contribution to this tiny self-enclosed genre some composers have defined for themselves – this is nonsense. You can only make statements such as ‘this is the future of opera’ if you radically reduce what you think music is capable of and if you choose to disregard huge domains of other musical activity.\textsuperscript{18}

As a composer, Fox wants to give the audience something unique and interesting in a digestible way stating that “everything should be astonishing… in the sense that I am doing this because I cannot imagine anything more interesting at the moment… and with a consciousness of probably who is going to listen to it.”\textsuperscript{19} This does lead Fox to consider his work in light of its intended performance. This can be heard in works such as \textit{From the Water} for the Merton College Choir book. Fox comments that “at some level, part of what you do is about some sort of dialogue with the dominant practice in whatever setting you are working in.”\textsuperscript{20} For Fox this is not a restriction of his compositional practice but something that actively stimulates his creative thinking. This approach is clearly reflected in Fox’s work on the \textit{Three Constructions after Kurt Schwitters} made in the BBC Radiophonic workshop where the composition of the work was tailored to the technology and facilities available (mainly a sequencer and a sampler with a small amount of memory storage which meant that materials had to be kept to short chunks).

\textsuperscript{18} ibid.7

\textsuperscript{19} ibid.7

\textsuperscript{20} ibid.7
The *Three Constructions after Kurt Schwitters*, particularly the first part, *MERZsonata*, is an example of how Fox’s creativity is directly stimulated by both his subject matter and the conditions in which the work will be realized. The work also demonstrates Fox’s radiophonic rather than electroacoustic or acousmatic approach to sound. As there is no transformation of the original sound materials in the *MERZsonata*, the emphasis is on their placement rather than a more electroacoustic fascination with their spectral transformation over time. For Fox the change in perception of a sound when one hears it in relation to a second sound is magical\(^{21}\). Rather that a spectromorphological transformation, the sound object is transformed in the mind of the listener through juxtaposition, producing a counterpoint between a listener’s reception and perception of the work through time.

Whilst Fox wryly retorts that his approach to electronics is “a mix of aesthetics and fundamental incompetence”\(^{22}\), it is clear that his musical agenda is closer to that of Luc Ferrari’s *musique anecdotique*\(^{23}\) of recording as means of capturing time rather than the transformation of sound. Fox is drawn to the sound of documentary material, again demonstrating his affinity to the Hörspiel and radiophonic traditions rather than the acousmatic. The ‘memory’ contained within documentary material is an important element and for Fox, there is something very touching about something that has gone

\(^{21}\) ibid.7

\(^{22}\) ibid.7

\(^{23}\) A sub-genre of electroacoustic music characterised by its emphasis on the narrative aspect of sound rather than their potential as abstract sounds within a composition. Luc Ferrari’s *Presque Rien no.1* (1970) - which condenses a day’s recording from a beach with minimal processing or manipulation into a little over 20 minutes is a key examples of this type of composition.
and cannot be recaptured\textsuperscript{24}. The beauty of such recordings is that there is an illusionary moment when you can imagine re-experiencing lost times. This is particularly the case in \textit{Cylinders Barn, 1947} where those interviewed in the recordings are now dead, all we have is the trace of their voice. Even Fox’s early compositions \textit{Magnification} and \textit{Winds of Heaven} with their use of delay and pre-recorded elements can be seen as an aural documentary the piece itself – something past that can never be experienced again is captured and replayed through electronics.

For Fox this approach goes back to his earliest days working in the studio. Following the early work of Stockhausen and Schaeffer, Fox thought that writing with electronics was something that a composer should simply do. Following early experiments with VCS3s at the University of Liverpool and aborted works for harpsichord and electronics and voice and electronics at the University of Southampton where he studied with Jonathan Harvey, Fox finally produced \textit{Magnification} (1978-80) in the studio at the University of York. Although somewhat in awe of the virtuosic use of the studio and the transformation of sounds by Trevor Wishart who would often follow Fox in the studio at York, Fox wanted to achieve something different with electronics. In \textit{Magnification} the singer multitracks herself humming and then sings over this. In a similar manner, the first movement of \textit{Winds of Heaven} (1984) uses a twelve second delay creating a sense of its own musical history. Although Fox is not interested in Harvey’s technique of morphing one sound into another, he is interested in the sense of ‘otherness’ that results through the playing back of instruments through loudspeakers, as in the fifth movement of Jonathan

\textsuperscript{24} ibid.7
Harvey’s *Bhakti* (1982) where the electronics play recordings of the ensemble back onto itself like an acoustic mirror.

A talk entitled ‘Spectres and Sprites’ by Tristan Murail at Darmstadt in 1982, an event at which he was first exposed to the formative theories of Clarence Barlow, discussed the use of the microphone as an audio microscope. Fox felt this was a *moment of permission* for his approach to using found sound and recordings. Fox has never been interested in transforming sound. For him the intervention of the microphone is enough and the sounds he records always contain a wealth of musical or referential interest. Fox comments that, “Source material turns into interesting things through being processed in a studio – but is not necessarily more interesting than the things you started off with.”25 Fox is interested in capturing the spontaneity and energy of the moment in recording – the authenticity of the material rather than perfection. This can be heard in the sound collage for ‘The Dark Rose’, the second movement of *The Dark Roads* which uses interviews with three men talking about their coming to Leeds from Ireland in the late 1950s and early 1960s. The interviews were made as part of Corinne Silva's *RÓISÍN BÁN* project (2006). Fox states that “Working with these voices has also made me think again that no amount of processing will ever make a recorded sound more interesting than it was in its original state.”26 For Fox what results from the process of recording and its subsequent editing can create another illusion altogether without the need for further sound processing. As well as *The Dark Roads*, the editing of voices to create something ‘other’ is also to be found

25 ibid.7

in the radiophonic MERZsonata, the chamber opera Widerstehen (2009-12) and comme ses paroles (2006-8) for eight voices and cello. Fox’s approach to sound and how it changes when projected through loudspeakers recalls Carlos Palombini’s writings on musique concrète. Palombini writes that, “when tackling concrete music…one should not understand notes, musical ‘ideas’, or sounds… but, rather, sounds on records… that have undergone denaturalization.” It is the idea of denaturalization that is crucial to the sounds being separated from the realm of the mundane, and converting them into music

The Instrumental Counterpart

Fox is a composer who mirrors the complexity of the world in the plethora of nodes he draws together in his music. His work can rigorously explore a single musical idea or be dynamic in its use of contrasts. What is important is the expressive significance of the musical ideas to convey the meaning of the work. In Fox’s works, the use of electronics is never merely decorative and merely providing a rich timbral and gestural sound world in which the instrument or ensemble is placed at its centre. Rather, Fox uses electronics to reinforce his musical ideas. As such, electronics act more like instruments, having a particular sonority, function, and behavioural set of limitations. In this sense Fox’s approach is very different from that of his teacher Jonathan Harvey. For Harvey, one of his main preoccupations with electronics was to


28 See Bhakti (1982) and Ritual Melodies (1989-90)
take a sound from one instrument and morph it into another. This musical alchemy is not interesting for Fox, his is a far more materialist approach to sound.

Two distinct approaches emerge in his combination of instruments with electronics. Either what emerges from the loudspeakers relates very directly to what is happening in the instrumental part or is totally alien to it. In *Headlong* (2007-9) the solo woodwind instrument is pitted against an electronic part comprising only square waves. Fox states that for the instrumentalist this is “a challenging aural landscape and they are having to deal with it.” In *Straight lines in broken times* (1994) and *chant suspendu* (1998) the bass clarinets and cello respectively are heard within a similar sonic environment such that the listener is presented with a meta-instrumental sound world where both the instrument and the electronic components are seamlessly interwoven. Although these works project different surface sonorities they are unified by a dualism between simplicity and complexity. Fox gets the maximum out of small elements through allowing simple processes and systems to proliferate to create complex networks of materials. This dualism is exemplified in *Straight lines in broken times* of which Fox writes,

the pre-recorded sounds consist of four superimposed bass clarinet samples taken at the bottom of the instrument’s range. These samples are pitched in just intonation: beginning with the instrument’s lowest note, the pitch ratios are 21:23, 19:21 and 17:19. Since the bass clarinet’s overtone spectrum is made up of only the odd-numbered harmonics, it will be apparent that the pre-recorded part effectively stands the instrument on its head, inverting the high harmonics 17, 11, 7, 5, and 3.

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29 Ibid.7
19, 21 and 23 to form a dense, dark bass, while the live instruments spend much of the piece sliding around the same harmonics in their “real”, high position.\(^{30}\)

What this quotation demonstrates is the musical and compositional richness and sonic complexity that is extracted from small initial resources. The same ratios also govern the rhythms articulated by the superimposed bass notes creating a rich polytemporal foundation.

A similar sonic environment is created in *chant suspendu* where cello is ‘suspended’ over a dark granular bass derived from the cello’s material. The first version of the work, performed by Ian Pace and Judith Mitchell used the piano to create this continual bass texture with the cello playing a continuous sixth-tone melodic line above this. In a subsequent version in which the piano was replaced by an electronic part at the request of Judith Mitchell, Fox stretched out a particle of the piano part. Fox writes of the original version,

> cello sounds highlighting constantly changing clusters of overtones within the mass of the piano sound - ‘microtonal’ piano music without the inconvenience of re-tuning. But the cello also provides its own accompaniment – melodic writing on the middle two strings is always supported by a drone on one of the other strings (and the outer strings are both re-tuned to Gs)

…\(^{31}\)

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\(^{31}\) Christopher Fox. Liner note to ‘chant suspendu’ on *Inner* (Metier: MSV CD92059, 2001).
Here we have the drone or granulated piano texture as a constant over which the ‘melody’ is heard. In both *Straight lines in broken times*⁴ and *chant suspendu* there is a duality between the instrumental and electronic parts. Because of the similar compositional processes governing both the instrumental and electronic parts there is an inherent tension between the two. The electronic ‘ground’ out of which instrumental lines emerge are inextricably bound to, but separate from each other. There is a magnetic, almost gravitational force between elements. In these works the linear relationship of notes is replaced by a vertical relationship of layers. What we hear is their changing interaction or gradual tectonic movement. In these works, Fox’s thinking is more electronic than instrumental in that the timing of the changes between elements in the musical texture gains more importance than the melodic or harmonic teleology.

Although Palombini’s quotation above refers to concrete sounds, the denaturalization that occurs through the amplification of an instrument is a technique that Fox has often used to create a sense of ‘otherness’. In *More Light* (1987-8) Fox originally wanted to make the piano resonate by playing electronic tones directly onto the soundboard of the instrument. Although he was unable to make this work as he intended, he still prefers the work to be amplified so that “you can make it sound like a stretched piano”³².

Such amplification was also used in another piano piece *More Things in the air than are visible* (1993-4), which also includes electronics. In his notebooks the initial

³² Ibid.7
sketches indicate that Fox considered two parallel tape elements: fast piano samples that were to transform gradually into ‘wind in trees’ and a second slower piano element which was to transform into ambient sounds of ‘flowing water and stones’. In addition, there are rhythmic sketches where the piano and tape are locked together in a ‘high clicking / low throbbing’. In the final version these transformations become three distinct panels of sound in which the behaviour of the electronic part is established and maintained within each movement. In the first movement the irregular piano chords punctuate the regular repetition of a single high note from a synthetic ‘factory’ piano setting from a keyboard. Whilst the second movement is for piano alone, the final movement, longer than both of the previous movements together, presents another type of duality - between piano and environmental sound. This environmental recording is to be newly made for each performance within close proximity to the performance venue. Therefore, across the three movements we move from the synthetic fixity of the rhythmic pulsation of the factory piano in movement one to the openness of movement three. This openness is not a naïve opening of the concert hall to the outside world but a more complex questioning of our role as listeners and the role of the performance. Fox says of this,

Field recordings have a wonderful quality to them – things happen once – you can never make them happen again. This is why in More things in the air than are visible the recording is made in the vicinity of the concert hall. In Birmingham I sat by the canal and recorded a barge coming past – panning wonderfully from left to right. For another performance by Philip Thomas in Sheffield I recorded the sounds of kids coming home after school and playing football in a park. As a result, the piece sounds really different each time.33

33 ibid. 7
Here we see Fox’s compositional interest in creating meaning in a composition through the putting together of unique elements and our understanding of the relationship between them. Every time *More Things in the air than are visible* is performed we hear the piano material in a different way – in relation to the recorded sounds – even though the material the pianist plays remains fixed in the score.

For Fox the recording is a metaphor of memory, a celebration of both things past and the everyday. The unedited nature of the recording in *More Things in the air than are visible* is typical of Fox’s desire to present materials as they are. In instructing that the recording not be edited, Fox captures the both the mundane and the unexpectedly wonderful events that occur spontaneously that can never be recaptured. It is a more radical approach that that of Luc Ferrari and whilst redolent of John Cage’s acceptance of any sound as music, reduces the framing of this to its very basic essence – a fifteen minute ‘slice’ of a recording - something that Cage would never do.

This group of pieces point forward to Fox’s later work. *Straight lines in broken times* and *chant suspendu* point to Fox’s development of the harmoniad – particularly the former in its use of a small set of ratios to govern the evolution of a whole work. Whilst, *More Things in the air than are visible* is illustrative of the more extensive collage works using samples and found sound.
The importance of the found object in Fox’s work is key to our understanding of him as a nodal composer. In works like *ZONE (Zeit-Ort-Name)* the concept of the ‘found’ sound is stretched but still appropriate. Fox uses the sine tone clusters that open *ZONE* as a direct sonic reference to Stockhausen and the early electronic music pioneers. He imparts nostalgia to the sound of the sine tone. More direct musical found objects occur in his earliest acknowledged works *Second eight* (1978-80) which uses elements from Stockhausen’s *Klavierstuck VIII* and *Dance* (1980) which draws elements from Stravinsky’s *Agon*. Later works such as the song cycle *A-N-N-A blossom-time* (1988) reference Berio’s *Folk Songs* and Schoenberg’s *Pierrot Lunaire*. For Fox these musical influences are no different from the influences he draws from poetry, painting or science; they inform his work and embed it within a cultural frame.

Fox’s use of found concrete sound and environmental recordings is particularly prominent in his two Hörspiel works, *Three Constructions after Kurt Schwitters* (1993) and *Alarmed and Dangerous* (1996) as well as more recent works like *Widerstehen* (2009-12) and *The Dark Roads* (2013). Despite Fox’s experience in the studios at the Universities of York and Southampton where Trevor Wishart, Richard Orton and Jonathan Harvey all emphasized that original source material for an electronic work should be recorded in a ‘transparent’ manner, Fox revels in the differing qualities of the audio recordings he uses. Of the three interviews Fox uses in *The Dark Roads* (originally part of Corinne Silva’s *RÓISÍN BÁN* exhibition) the first is too quiet, so in amplifying the voice, the background noise is also raised to what
would normally be an intolerable level. In the second interview recording there is a lot of clipping as the gain was set too high. In using these recordings as documents, Fox, like Duchamp and Cage is using the recording as a ‘ready-made’ in which the texture of the recording is loaded with information itself and is as important as the audio intended to be conveyed.

In *Alarmed and Dangerous* fragments of recorded speech, biblical quotations (Revelations 8:2), the history of alarms, political outbursts as well as musical quotations from ‘The trumpet shall sound’ from Handel’s *Messiah*, Monteverdi’s *Orfeo* and Ives’s *The unanswered question* are all woven together. The central node from which everything radiates is the ‘trumpet’ and its history. Further extended nodal contacts are made in Pt.2 in which a multitude of contemporary sirens are used. Their use recals the importance of the siren in iconic avant-garde works such as Arseny Avraamov’s *Simfoniya gudkov* (1922), (often referred to as the ‘Symphony of Sirens’, but in fact used a large number of sirens alongside artillery and machine guns, hydroplanes and foghorns and sirens from Russian Navy ships), Varèse’s *Hyperprism* (1924) and *Ionisation* (1931), George Antheil’s *Ballet Mécanique* and Kagel’s *Der Schall* (1968).

It was one of Fox’s students Paul Drew who, in the early 1980s, introduced him to the work of Kurt Schwitters (1887-1948). Immediately Fox was drawn to the *Ursonate* (1922-33) with its rigorous classical structure resulting in a surface minimalism through the repetition and juxtaposition of sonically rich text, as well as the visual work that he considered to be even more radical as a result of Schwitters’ use of found
objects. In Schwitters’ work, and particularly the Merzbilder, there is the use of everyday objects to construct large architectural objects. In the outer movements of the *Three Constructions*, Fox is interested in using sound in a sculptural manner in the way that Schwitters does in his visual work. Fox’s is interested in exploring the relationship between quite distinct elements through their juxtaposition though time just as Schwitters used stark angular objects in his first *Merzbau* in Hanover.

The approach to sound in these works owes more to North American and European models than it does to the prevailing trend of Fox’s contemporaries in England at this time such as Denis Smalley and Jonty Harrison whose work focused on acousmatic and electroacoustic aesthetics primarily derived from Pierre Schaeffer and the GRM. From a nodal perspective Fox’s electronic work creates a connective network between Cage’s *Williams Mix* and *Roaratorio*, Luc Ferrari’s used of found sound, Alvin Curran’s sampling keyboard pieces and Stockhausen’s collaging of sound within strict time structures, Fox’s kinship with the north of England, his interest in oral documentary, Charles Parker’s Radio Ballads produced for the BBC as well as more remote nodes such as *Wochende* (1930) by Walter Ruttmann comprising an impressionistic montage of everyday sounds edited as sound only on film are additional influences. In addition, Ian Pace writes that the work “relates to Cage (to whom the title *Three Constructions*… is a homage), finding music in everyday, un-‘intended’ sound.”

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35 The most famous of the Merzbilder was the *Merzbau* in which Schwitters transformed at least six rooms in his house at Waldhausenstrasse 5 in Hanover between 1923-1937. The house was destroyed in an Allied bombing raid in 1943.

In the *MERZsonata* and *Cylinders Barn, 1947*, Fox’s relationship to recorded sound in relation to those around him producing acousmatic music is similar to the relationship between Pierre Schaeffer and Luc Ferrari. Ferrari shared Schaeffer’s passion for recorded sound. However, whereas Schaeffer aimed for a theoretical and ideological approach to manipulating and listening to sound, Ferrari rejected this notion of reduced listening and the codification of sound. Seth Kim-Cohen writes that “Rather than detaching a sound from its source to arrive at the primordial objet sonore, Ferrari prized sounds for their connection to the world and to senses other than hearing.”\(^{37}\) The important theoretical element here is the approach to material. Rather than Schaeffer’s reductionist approach Kim-Cohen suggest that “Ferrari’s relationship to his material has far more in common with the cultural phenomenology of Merleau-Ponty, accepting phenomena as ‘the permanent data of the problem which culture attempts to resolve’”\(^{38}\) Kim-Cohen continues,

> Merleau-Ponty proposed that raw phenomenological data is importantly yet merely, the foundation from which thinking and doing proceed…Unlike with the Schaefferian acousmatic, sound is not stripped of its meaning, neutralized as sound-in-itself, to be reconstructed as a composition. Instead, its connection to a social reality is left intact. More than that, the social meaning of the sounds plays a part in determining their placement and treatment in the composition.\(^{39}\)

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\(^{37}\) Seth Kim-Cohen. *In the blink of an ear: toward a non-cochlear sonic art.* (USA: Continuum Publishing, 2009).

\(^{38}\) ibid.37

\(^{39}\) ibid.37
This ‘social’ meaning of sound is significant in Fox’s work – the voices in *Widerstehen* or *The Dark Roads* or our recognition of different recording techniques in *re:play* are chosen and edited specifically to highlight the grain of the recording. With his typical wry humour, Ferrari termed his work *musique anecdotique* and referred to pieces such as *Presque Rien No. 1* (1967-70) as *son mémorisé*. Kim-Cohen writes,

Ferrari’s works are anecdotal both because they are formed of anecdotes from the flow of the cultures in which the original recordings were made, yet also because they combine to form new anecdotes. The sounds of a piece of Ferrari’s musique anecdotique are open conduits in which meaning flows between the worlds from which they were taken and the world they create. This meaning is pointedly Derridean, a product of differential friction and the trace of alterity, a meaning constituted by what it is not.\(^{40}\)

Fox’s work on *Cylinders Barn, 1947* is aesthetically close to Ferrari’s *Presque Rien, No.2: Ainsi continue la nuit dans ma tête multiple* (1977) in its use of different location recordings and interviews as oral documentary. Such anecdotic sound is also used in another influential piece for Fox, John Cage’s work *Roaratorio: An Irish Circus on ‘Finnegans Wake’* (1979) produced at IRCAM and the WDR for Klaus Schöning. Fox first heard this work in 1982 and was struck by the visceral quality of the work and how this was achieved not through the transformation or sounds but by means of their editing and juxtaposition. Cage’s work is a mix of music, poetry, oral recitation, tape montage of sounds, using human voices, natural sounds, environmental sound, noises, singing and music. Fox also heard Cage’s *Marcel

\(^{40}\)ibid.37
Duchamp, James Joyce, Erik Satie: An Alphabet another WDR production commissioned in 1982 and although this work contains no composed music as such, it nevertheless confirmed to Fox that the editing of sound, particularly the voice, could be transformation enough. Fox’s approach to sound in the *Three Constructions after Kurt Schwitters* was also informed by his reading of Klaus Schöning’s book ‘Neues Hörspiel: Essays, Analysen, Gespräche.’

In addition to Cage and the Hörspiel tradition is the influence of the Prix Italia winning BBC Radio Ballads produced by Charles Parker (1919-1980) in collaboration with Ewan MacColl and Peggy Seeger between 1958-64. The Radio Ballads were the first audio documentaries describing the lives and experiences of working people in their own words, using sound, songs, instrumental music and various effects to portray this. They were at the time considered radical due to the fact that they did not use actors or a script but rather focused on people relating their experiences in their own words. Although only eight programmes were made including *Singing the Fishing* (about north sea herring fishermen), *The Big Hewer* (about miners in Northumberland, Durham, South Wales and East Midlands), and *Song of a Road* (about those involved in building the M1 motorway from London to Yorkshire), Fox particularly remembers hearing *The Long March of Everyman* when he was young. They are now rightly regarded as landmarks in oral history study. Parker believed passionately in the presenting the testimony of working people.

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41 Klaus Schöning. *Neues Hörspiel: Essays, Analysen, Gespräche.* (Frankfurt: Main, 1970)
In the *Three Constructions after Kurt Schwitters*, Fox creates a Hörspiel on Schwitters’ life. The form and essence of the pieces follow Schwitters’ three MERZbau in Hanover, Norway and England. The first part, *MERZsonata* is modeled formally after Schwitters’ *Ursonate*. Alan Foljambe writes that the,

*Ursonate* is structured very classically, like much of Schwitters’ work, but its contents and meaning contest this structure utterly. This is what Richter means by Apollo and Dionysus holding hands. It is a more extreme example of the language challenging structure of writers such as Raymond Roussel and André Breton. In order to reach the audience with utterly foreign material, the material is put into a format which is partially familiar, allowing the viewer or reader an entrance into the experience.\(^{42}\)

In *MERZsonata*, Fox takes the finale of Schwitters’ *Ursonate* and replaces each event whilst keeping the timing of events and their repetition intact. The structure of this final movement of the *Ursonate*, a sonata form with a repeated exposition, becomes a skeletal frame for Fox to insert his own material. Fox collected recordings of Schwitters, found sound and recorded his own vocal materials to create a biography in sound. No sounds are used in the piece that cannot be directly traced back to Schwitters’ life. Fox’s work is funny – it contains the composer barking, mimicking Schwitters’ eccentric habit of barking like a dog each night before going to sleep during his time at the Hutchinson Square Internment Camp on the Isle of Wight during the Second World War. Yet the *MERZsonata* is also a profound acknowledgment of the human condition without the pretense of the seriousness of

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contemporary electroacoustic and acousmatic music. Fox writes, “Like the materials of a Schwitters collage, each element is both itself and part of something new.”

This use of a rigorous temporal structure into which materials are placed stimulates a number of obvious nodal connections. Cage’s *Williams Mix* (1951-53) is constructed from a vast array of sounds divided into six categories and subjected to I-Ching manipulations which results in a 193 page score which the composer referred to as “a dressmaker’s pattern – it literally shows where the tape shall be cut, and you lay the tape on the score itself.” A further comparison with Cage and the *MERZsonata* is to be found in *Roaratorio*. In Cage’s work there are a large number of sound effects that the composer recorded in Ireland and other geographical locations mentioned in Joyce’s text. The important point here is that when the effects were then mixed into *Roaratorio* they were placed where they appear in Finnegan’s Wake itself. So Cage uses the Joyce as a pre-made form for this particular sonic layer as Fox uses the Schwitters’ *Ursonate*. This pre-made form is also nodally connected to Stockhausen’s *Telemusik* (1966) in which each of the 32 ‘moments’ is governed by Fibonacci-derived durations into which material is placed.

Fox spent three weeks in 1993 in the BBC Radiophonic Workshop composing the *MERZsonata* and *Cylinders Barn, 1947*. Always keen to embrace the resources available to him in a creative manner, Fox focused in on working solely with a

43 ibid.5

sampler. For the *MERZsonata*, Fox loaded twenty-three samples into the sampler (see Fig.1) and then sequenced the material following the structure of the final movement of the *Ursonate*.

In the list of samples seeming repetitions of texts are in fact taken from different original sources. As well as using his own recordings, Fox also utilized materials from the BBC archives and library. Schwitters’ own performance of the *Ursonate* is sampled for sounds 1, 2, 16, 17 and 23; and his performance of *Anna Blume* for samples 4, 5 and 18. Fox used Klaus Hinrichsen’s ‘Interned with Kurt Schwitters’ for samples 3, 6, 7, 9, 20, 21 and 22 and a recording by Richard Huelsenbeck (one of the founders of the Dada movement in Zurich) for sample 8; and Basil Taylor for sample
19. A final sample labeled ‘Etude’ is taken from Chopin, a composer Schwitters admired, and performed by Ignacy Jan Paderewski, an exile like Schwitters. Although Fox considers this link “tenuous” it is yet a further example of his nodal thinking.

Where Fox does not follow the exact number of repetitions of a musical example in the Ursonate (which is rare) he maintains the temporal span of the original. In the exposition of the work below there are three instances of this temporal substitution: ‘ooka’ is repeated seven times rather than eight, ‘rrrr’ is repeated fifteen times rather than sixteen and ‘liebe dir’ is used in place of a whole line due to its elongated and exaggerated delivery.

Figure 2 presents a comparison of the exposition of the final movement of Schwitters’ Ursonate (left) and Fox’s MERZsonata (right). Fox’s use of found sounds are represented in square brackets:

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Grimm glimm gnimm bimbimm (x8)  Oooo hallo [barking] dada
Bumm bimbimm bamm bimbimm (x4)  Hallo dada Anna dada
Grim glimm gnimm bimbimm (x4)  Oooo hallo [barking] dada
Bumm bimbimm bamm bimbimm (x4)  Hallo dada Anna dada
Bemm bemm (x4)  Ooka ooka (seven in total)

Tilla loola luula looa  MERZ [cage door] [saw] [cage door]
Tilla Luula Loola Luula  MERZ [saw] [cage door] [saw]
Tilla loola luula looa  MERZ [cage door] [saw] [cage door]
Tilla Luula Loola Luula  Ooka ooka (seven in total)

Grimm glimm gnimm bimbimm (x8)  Oooo hallo [barking] dada
Bumm bimbimm bamm bimbimm (x4)  hallo dada Anna dada
Bemm bemm (x4)  ooka ooka (seven in total)

Tatta tatta tuiEe tuEe (x4)  Blume Blume rinnze kette beebee
Tilla lalla tilla lalla (x4)  MERZ [piano etude] MERZ [piano etude]
Tuii tuii tuii tuii (x2)  Dedesnn Rrrrrrum (x8)
Tee tee tee tee (x2)  liebe dir (long)
Tuii tuii tuii tuii (x2)  Dedesnn Rrrrrrum
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45 Christopher Fox. Private email with author. 27.1.2014
In Fox’s notebooks he considers *Cylinders Barn, 1947* as being “The last years – a documentary reconstruction”\(^{46}\). The work is concerned with the last of Schwitters’ large-scale installations, the MERZbarn, the barn in question being situated close to the artist’s final home in Ambleside, between Elterwater and Chapel Stile in Cumbria in the Lake District in the north of England. Fox and his daughter Anna fabricated sounds of Schwitters working on the MERZbarn. Over this anecdotal sound are heard the voices of Harry Pierce who owned Cylinders Barn and Harry Bickerstaff, an Ambleside schoolmaster who befriended Schwitters. Fox’s notebooks (see Fig.3) reveal that he also considered using the voices of Klaus Hinrichsen who was interned with Schwitters, Edith Thomas and Schwitters himself.

\[\text{Fig.2: Comparison of the opening of the Ursonate (left) and MERZsonata (right)}\]

\(^{46}\) Christopher Fox. Composer’s private sketchbook. 1993
Furthermore, the notebooks reveal that he originally considered including far more audio documentary recordings from interviews (see Fig.4) in *Cylinders Barn, 1947*.

[insert Figure 4 here – portrait]

and that these were to be arranged in the form of an imaginary dialogue through the placement of the recordings in the stereo sound field (see Fig.5).

[insert Figure 5 here – portrait]
Fox’s use of found sounds are made up from the following actions and recordings:

i) pouring – earth / sand / pebbles / water into different materials including paper and tin cans

ii) walking – on various surfaces and in different shoes

iii) hitting / rubbing / scratching

iv) landscapes cross-faded

Fox’s use of these sounds and the way he uses them in his composition is far removed from the acousmatic approach of his near contemporary Jonty Harrison\(^\text{47}\). Harrison writes that “the judgement of whether something is worth pursuing is always and only based on listening, on aural assessment, on what I hear: the primacy of the ear” and that his method is to “Record some interesting sounds… Process and develop them in the studio… Put them together with some others, adjusting as required.”\(^\text{48}\) As is described below, Fox’s approach is fundamentally different from this tradition and

\(^{47}\) Harrison (b. 1952) and Fox (b. 1955) were contemporaries at the University of York and both acknowledge the influence of the work of Trevor Wishart on their practice - be it something they we drawn to (Harrison) or not (Fox), particularly with regard to Wishart’s focus on the transformation of sound.

that of Luc Ferrari despite the anecdotal nature of the sounds used. What differentiates Fox’s work is his use of carefully constructed time structures within which he places often untransformed found sounds.

Fox creates a structure from fifteen 0’23” blocks. Although Fox’s sketchbook indicates that he toyed with section lengths of 0’28” and 0’36” it cannot be a coincidence that the MERZsonata is formed from 23 samples, and that Schwitters’ first Merzbau in Hanover was started in 1923, the same year he also started publishing the Merz periodical. In the final work and as can be seen in Figure 6, the basic 0’23” block has both shorter and longer samples that are overlayed within and across this metric division. The aural result is one in which a slow periodicity is apprehended with vocal recordings providing a counterpoint.

[insert Figure 6 here – landscape]
Fig. 6: Extract from Fox’s notebook showing the timeline structure for *Cylinders Barn, 1947*.

The *MERZsonata* and *Cylinders Barn, 1947* are on the surface simple works. The number of references that each contains and their manner of construction reveals much more, not only about Kurt Schwitters, but Fox himself and his aesthetic preoccupations. As such they present a rich nodal network that illustrates Fox’s debt to the experimental tradition of the twentieth century across a multitude of creative practices.

**Harmoniad**

If Fox’s use of collage represents one nodal complex that situates his work within, and consciously draws references from, the twentieth century experimental tradition, then his development of the harmoniad and his approach to microtonality represents some of his most abstract thinking and his debt to modernism. Fox’s most significant and early exposure to microtonal thinking was at the 1982 Darmstadt Ferienkurse where he encountered the music of Giacinto Scelsi, Gérard Grisey, Tristan Murail, Horatio Radulescu as well as Clarence Barlow and Walter Zimmerman. Of these, Clarence Barlow was perhaps the most influential. Barlow’s approach to microtonality extends well beyond the use of quarter- or sixth- tones exploring many different temperaments as well as unusual scale formations such as the Noleta and Bohlen-Pierce scales. Fox writes that,

Clarence was a big influence. I heard *Im Januar am Nil* (1981-84) (Barlow revised the piece after this concert) in the very first concert in Darmstadt 1982 (along with Radulesu’s *Thirteen Dreams Ago*) and went to his lectures and bought the LP of *Çoğluotobüsletmesi* (1975–79) and
his book, ‘Bus Journey to Parametron’ (1980) is a detailed study of tonality and rhythm/metre, which I used as a source of ideas for years afterwards, particularly the stuff about rhythms and harmony. He has interesting ideas about metre and how to progressively lose the identity of a particular metre. Harmonically, he set me thinking about ways of making transitions between consonance and dissonance and also about the way timbre affects the perception of dissonance.49

As well as Barlow’s theoretical thinking there are two specific aspects of his compositional work worth noting in relation to the development of Fox’s aesthetic. In the opening section of Im Januar am Nil (1981-84) the almost obsessive presentation of different permutations of a musical phrase is a technique Fox had already used in ‘America’, the third movement of American Choruses (1979-81) and frequently occurs in Fox’s oeuvre as is evident in Etwas Lebhaft (1983) Straight Lines in Broken Times4 (1994), BLANK (2002) and L’ascenseur (2012). The second example is Fox’s use of sine tones in ZONE (Zeit-Ort-Name) (2002-4), für Johannes Kepler (2007-8) Sea to the West (2014) to spell out the harmoniad sequence used in the work. This juxtaposition of sine tones and instruments create a rich nodal complex recalling Barlow’s …until… version 7 for guitar (1980) in which the guitar plays entirely in natural harmonics accompanied by a sine tone that slowly rises throughout the work, a technique also used in …until… version 8 for piccolo (1981), as well as works by Alvin Lucier and James Tenney, whose work Fox encountered at Darmstadt in 1994.

Like Barlow, Fox does not simply employ one microtonal system but explores the complete gamut of pitch in a variety of imaginative and non-dogmatic ways. In Etwas Lebhaft natural harmonics and quarter-tone writing co-exist. Straight lines in broken

49 Christopher Fox. Private email correspondence with author. 28 January 2014.
times is a step closer to the harmoniad in that it constructs a scale using three-quarter-tone steps. Three scales exist within this system so there is a ‘modulation’ possible between each of them. No weighting is given to the scales but there is a difference in pitch content. To counter this lack of functional weighting Fox changes scale at structural points, where the musical line reverses direction or repeats itself, often accompanying this with a change in timbral articulation. For Fox,

the extension of the intervallic palette beyond 12-tone equal temperament made possible both an expansion of tonal colour and a reconfiguration of musical space. At its simplest, the use of microtones made my music sound different, even ‘other’…

The harmoniad reconfigures musical space in a radical manner. One of the most important aspects of the harmoniad is how it enables Fox to develop a meaningful structural harmony through a relational use of central sonorities that are not derived from the traditional tonal system. In conversation with James Weeks, Fox states that,

I want sometimes to write music that can change harmonic weight as it goes along, so that the gravitational pull of a tonal centre can come and go. At other times I want to make harmonic shifts in the music that will have the same sort of emotional impact as a key change in 18th- and 19th-century tonal music.

The harmoniad is the epitome of nodal practice. It does not rely on an equal division of tones to form a new scale but rather a set of ratios to create a central tone and nodal satellites (see Fig.7). The harmoniad is a way of consistently producing inconsistent

50 ibid.26
51 ibid.12
blocks of material. It is the overall quality of these local nodal pitch networks that interests Fox as harmony becomes timbre.

[insert Figure 7 here – portrait]

The harmoniad also develops from Fox’s interest in self-similar structures, a technique inspired by the work of Tom Johnson. In his notebooks Fox writes that the harmoniad and self-similarity are “linked since both demonstrate an intrinsically coherent and proliferating set of relationships which do not rely, however, on a strict exposition to be audibly evident.”52 The harmoniad was first used in the ‘Raumtone’ movement of Everything You Need To Know (2001) written for the Ives Ensemble. Like Fox’s use of ratios in Straight Lines in Broken Lines4 where a small number of complex ratios yields a wealth of material, so the nodal form of the harmoniad produces long lines of similar but varying material that endlessly proliferate. In Everything You Need To Know, Fox starts on a low F and uses chance techniques to

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52 Christopher Fox. Composer’s private sketchbook. 2002.
develop this pitch’s position within a spectrum of six possible pitches; one of the three closest harmonics is chosen randomly to be the second pitch centre. Two satellite pitches are then produced around each centre and the process is repeated to produce two secondary satellites around each primary satellite. Here one is reminded of the writings of Harry Partch who referred to his own approach to tuning as an arrangement of tones in which each central tone or consonance is “a little sun in its universe, around which dissonant satellites cluster.”\textsuperscript{53} Importantly, for Fox in the harmoniad there is,

an audible hierarchy between the three generations of pitches within each compound, with each of the subsequent generations of satellite pitches tending to be more remote from the pitch centre. An emphasis on secondary satellite pitches will tend, therefore, to have an effect similar to that of a modulation to a more distant key in tonal music.\textsuperscript{54}

Thus, a network of harmonies is created that enable long-term, low-level structural relationships and even facilitate a sense of modulation. However, Fox realized that in \textit{Everything You Need To Know}, \textit{Shadow cast} (2001) and \textit{an den Schattengrenze} (2001-2) that the harmoniad is used to produce linear material rather than being present itself as an identifiable ‘sound object’. If we consider the harmoniad as a contemporary approach to harmonic and melodic thinking, akin to Skryabin and Stravinsky’s approach in the early twentieth century, then the three works cited above illustrate the first part of Skryabin’s concept that “melody is unfurled harmony” just


\textsuperscript{54} ibid.26
as ZONE reflects the latter, that ‘harmony is furled melody.’55 In the opening movement of ZONE the harmoniads are presented unambiguously as easily perceivable units of material in sine tone clusters. This bold statement is all the more stark in that the purity of the sine tone harmoniad clusters is juxtaposed with the extremely heavy bowing noise on the solo cello.

[insert Figure 8 here – portrait]

In Fox’s sketches for ZONE the differing nodal configuration of pitches for each harmoniad is clearly demonstrated (see Fig.9) with the final form for each local nodal

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network appearing on the top of the pitch chart for each movement (see Fig.12a and 12b).

[insert Figure 9 here – portrait]

Fig.9: Sketch for the nodal configuration of harmoniads in ZONE (2002-4)

In ZONE there are nine movements, with each using nine harmoniads as their harmonic foundation (see Fig.10).

[insert Figure 10 here – portrait]

Fig.10 Central nodal pitch for each movement of ZONE

From each of these central pitches a nodal group of satellite pitches is derived by means of simple ratios. Each of the nine harmoniads within a movement is derived from a central pitch node using different ratio combinations to produce different pitches (see Fig.11a and Fig.11b). The differing nodal arrangement of pitches is clearly indicated at the top of each page.

[insert Figure 11a here – landscape]
Fig. 11a: Pitch chart for ZONE, movement 1 harmoniads

[insert Figure 11b here – landscape]

Fig. 11b: Pitch chart for ZONE, movement 1 harmoniads
As well as reconfiguring pitch space and providing a hierarchical harmonic foundation for his works, Fox is also interested in the harmoniad for the unusual sonorities that emerge. In skin (1998-99) written in sixth-tones for string trio, Fox created an auditory illusion in which the trio sound like an accordion. In ZONE a similar effect occurs in the ‘chorale’ fourth movement for ensemble along and the long sustained tones of movement 8 for ensemble with electronics.

**Conclusion**

Fox’s approach to electronics is diverse, casting a wide net over experimental music, synthetic tunings, sampling, Hörspiel and the use of found sound. Although I have explained this breadth of practice and approach to sound as being part of Fox’s nodal character as a composer, it is his utilitarian approach to electronics that marks Fox out as moving against the tide of contemporary trends in electronic, electroacoustic and acousmatic music. For Fox, a sound is chosen specifically because it represents a node within the network of influences informing a work, one that is important in understanding the structure or the meaning of the composition. As such its sonic identity and materiality are fundamental. In processing and transforming the sound the function of the original would be lost and our attention as listeners would be on the manner in which any given sound is transformed, rather than its relationship with other sounds, other nodes in a signifying network of nodes. This functionality applies to the use of sine tones in the harmoniad works as much as the found sounds and samples chosen for the MERZsonata.
Of fundamental importance in understanding Fox’s approach to electronics are his encounters at Darmstadt between 1982 and 1994 of many different contemporary practices. Each of Fox’s works can be regarded as a dynamic nodal reconfiguration of ideas stemming from the experimentalism of Cage, the structuralism of Stockhausen, the microtonal theory of Barlow and the collage and music-theatre work of Kagel. As Fox himself writes,

As a composer who is interested in making music which is contingent upon, not hermetically removed from, as broad a range of musical experiences as possible, I recognise the danger that I may be finding in Darmstadt those things which I am predisposed to find. Nevertheless… my exploration of these ‘fruitful lands’ goes on.56

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