



## City Research Online

### City, University of London Institutional Repository

---

**Citation:** Pace, I. (1999). Modulor von Ian Willcock. Musik & Ästhetik(10), pp. 47-58.

This is the draft version of the paper.

This version of the publication may differ from the final published version.

---

**Permanent repository link:** <https://openaccess.city.ac.uk/id/eprint/6327/>

**Link to published version:**

**Copyright:** City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

**Reuse:** Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

## Ian Willcock | Ian Pace

Ian Willcock is one of a particular generation of British composers born towards the end of the 1950's, including Richard Barrett, James Clarke, Christopher Fox, Chris Newman and Roger Redgate, who have felt estranged from the mainstream of British music and have been more drawn towards continental ideas and models. It is perhaps no coincidence many of these composers have achieved success as much in Europe and elsewhere as in their native land.

Yet it would be disingenuous to deny the presence of 'British' elements in Willcock's music, ideas and approach, or that of any of the aforementioned composers. What Arnold Whittall calls 'the British ploy of regarding Brian Ferneyhough or Chris Newman (or Christopher Fox) as honorary Germans' [1] is by no means my intention here. In Britain, the level of support, recognition or subsidy provided to any composer is scant and begrudging, let alone one of an avowedly modernist nature. Artists are invited by right-wing populists to feel guilty if their work does not achieve instant box-office success. The cancer of rigidly empirical thinking that sweeps like a malaise through the collective consciousness of Britain results in a reactionary aesthetic which privileges that music which appeals to the familiar, the already-experienced; that which reminds one of other music and hence is considered most 'musical'.

Yet the issue of music's relevance to a wider public has been an issue to many musicians on the left ever since Cornelius Cardew's famous polemics and musical volte-face. It would seem that this is a specifically British (or at least Anglo-Saxon) manifestation, tied in with scepticism towards aloof, self-proclaimed artist hero-figures or gurus. This seems quite different to the thinking on music by composers on the left from Germany or Italy, where the ideas of Adorno, Benjamin, Gramsci and others are so highly influential. In these countries, composers' addressing of the questions of music's political importance tend to take on a more abstracted form, whereby art strives towards creating the intellectual circumstances which could permit societal change, rather than aiming to speak directly to the masses.

These are large generalisations, but not without some validity. Willcock, as a dedicated socialist, supporter of the Socialist Workers' Party, is concerned with how his music can relate to ordinary people outside of the intelligentsia, and to avoid esotericism and unwarranted obfuscation. This does not lead him towards nostalgia or the use of musical clichés, but instead the development of a new foregrounded musical rhetoric that is immediate and accessible, using the most clear and direct parametric working with register, dynamics, instrumentation and other factors (combined with much formal rigour) to provide a surface of maximum clarity and perceivability, away from the museum culture that informs too much art. In works such as *Cruelties - a catalogue of grotesque events with real-life examples* (1991) for mezzo-soprano, four players and tape, or *Schön...* (1993) for electric guitar, five players and speaker, which uses a text from Brecht, Willcock is explicit about his political motivations.

Willcock was born in 1959 in Welwyn Garden City, a small town north of London. He started composing around 1980, while still a student. At this point his artistic background was rooted generally within the performing arts, in particular drama, and he moved towards a specific interest in music. He had up until this time been drawn

towards rock music, its concision of gesture and particular mode of rhetoric. His compositions from this time, however, reflect more of an influence of Stravinsky, Schoenberg and early atonality. It was not until a little later that he began to encounter the work of Stockhausen, Xenakis, Nono et al. Between 1982 and 1984 he studied for a Master's degree in composition with David Lumsdaine.

As Western art music is, traditionally, inextricably wound up with bourgeois culture (not least because of the cost of its production) to an extent not necessarily true of other art-forms, composers seeking a different type of music have looked elsewhere for ideas and inspiration. For Xenakis it was models of growth, organisation and entropy found in natural phenomena, for Michael Finnissy the earthy, grounded world of folk-musics; for Willcock the formal procedures present in much modernist literature (for example the works of James Joyce, John Dos Passos, Vladimir Nabokov, Samuel Beckett, or from an earlier era, Lawrence Sterne), or more fundamentally in everyday conversation, appertained to the structural devices he found applicable towards his own ends:

Examples of this sort of organisation - which of course are applicable to all sorts of media - include juxtaposition, interruption, various simulacrum of human memory processes (reiteration, varied repetition, partial repetition, etc.) and the projection of a thematic strand over multiple, possibly discontinuous formal boundaries (rather as a story line may proceed through separate chapters in a conventional novel) [2].

Music involves an act of listening - and I see my composition as essentially a process of defining a schedule for the audience's perception, of writing down a path, or more usually a set of paths, for a listener to follow. I could perhaps here use the image of a playwright, writing lines and actions for an actor, or set of actors, to follow. For me, the 'actors' are the ears of the audience, the instruments in the ensemble are the means for articulating the lines along which those foci of attention.[3]

Willcock wishes however to expand and challenge audiences' perceptions, rather than reinforce their prejudices. To this intent, he eschews pre-conceived notions of what constitutes the purely 'musical' in favour of a musical which provides an analogue of the fragmentary and dialectical nature of contemporary experience and one's perception of it:

It is rather as if one were in a large room surrounded by groups of people; some are having conversations, some arguments, some are delivering polemics and some are even, perhaps, engaging in anti-social and unpredictable behaviour! Now if one moved around this room, listening, one would, over the course of time, hear ongoing snatches of the conversations, one might be startled by the interruptions or possibly hear something of such interest or beauty that all other activity was blanked out so as to concentrate, temporarily, on the single voice.[4]

It is Willcock's belief that many formal structures in music and other arts are contained within the more generalised fields of historical human behaviour. Discourse can also be seen to include forms of repetition that in some senses parallel sonata, rondo and other forms. Perhaps the success of these forms thus ultimately derives from such atavistic roots.

But Willcock's music is not some footnote to a generalised theory or world-view. It is of paramount importance to him that his music should exhibit an emotional, visceral quality, as an autonomous sonic entity.

Willcock makes frequent use of computer-generated processes, like Xenakis or Willcock's exact contemporary Richard Barrett. For Willcock, the design of algorithms, specification of regions of activity or constraints upon random processes (delimitation) are fundamentally compositional decisions. His use of the computer is more as a tool than as a part of the aesthetic - often subjective criteria will lead him to discard particular results.

Now that finally the whole issue of systematic working in composition is beginning to be treated with a little more intelligence than hitherto (other than by the most ignorant of self-styled neo-romantics), it is becoming possible to compare and contrast the aesthetic role that systems (by which I include (particularly) random processes) play for different composers. I have touched upon these issues in several of my other writings [5], but fascinating discussions with Ian Willcock lead me to expand further here. At the furthest extreme remains Cage, for whom systems were a means of abjuration of the self, the ultimate attempt (though of course never completely attainable) at writing the composer out of the equation altogether. A less extreme, but still radical, position is provided by the work of Chris Newman and some of the more recent work of Michael Finnissy, for both of whom systems provide a means of self-transcendence, of moving outside the boundaries of individual tastes and prejudices; consequently the results of a system may be accepted even if they are not what the composer actually desires (this is more often the case for Newman than Finnissy). Both these types of aesthetic could be said to be in some sense 'experimentalist', as opposed to that of Birtwistle, say, for whom the precise nature of some small-scale details are not a paramount decision; or at least a variety of possibilities will serve the purposes of a piece. Then again there is the position of Xenakis or Ligeti, in whose work systems are used to provide simulacra of models from the natural (or human) world. Distinct again is the position of Stockhausen whose essentially top-down approach, in which the complex design of the systems and their application is the bulk of the compositional procedure, is more didactic and controlling than that of Xenakis.

Willcock's aesthetic position vis-à-vis the use of systems compares most obviously with that of Stockhausen, but also seems to me to lie somewhere between those of Birtwistle and Xenakis, albeit with some differences. His systems are compositional tools for producing the results he anticipates most efficiently and coherently. Usually he has a clear idea of the desired result, and designs the systems accordingly. This places him at a considerable distance from the 'experimentalist' aesthetic, though he will try as far as possible to accept the results of his systems, and there is a small element of the idea of transcendence in his thinking. More importantly, the processes are designed so as to appear as close to the surface of the work as possible, and thus be most clearly perceptible. The processes are more than a means to a musical end; to enable a listener to actively engage with the processes is part of the end itself.

To an even greater degree than Stockhausen or Barrett, Willcock's pieces are strikingly closed, hermetically sealed, self-contained entities, rather than fragments of some larger canvas. However, many pieces do use material taken from other of his works; these generally intrude in gaps between processes. Willcock sees such

fragments as providing a form of 'background noise', a sonic continuum above which most of his pieces are projected, rather than a means of creating stylistic unity.

Willcock uses pitch in a manner that has some tonal parallels. He will set up central pitches which predominate, together with scatterings of other statistically generated pitches within a prescribed range, from a zero-interval (absolute unity) to any interval ('total annihilation'). The central pitches provide 'centres of gravity' even if they are not actually present.

Whichever instruments he uses, he is concerned to move beyond the medium's historical connotations, and to re-invent the instrument(s) by re-examining their fundamental nature. The pieces are not incidentally written for the instruments concerned, which in turn are not merely devices for producing sound; rather the very nature of each piece is predicated upon the physical nature of the instruments. For example, *The Onset of Turbulence* (1998) is not just a work *for* electric guitar (and sampler), it is a piece *about* the electric guitar itself. Thus it is practically unthinkable that Willcock could re-arrange a work for a different medium, and he remains sceptical when other composers do so.

For Willcock, the score is essentially a set of instructions to be followed as closely as possible. His scores are precise and detailed in the information they supply, but probably less 'complex' than those of some other composers. He does not see the score as a type of delimitation of the performer's creative imagination, as might be said of Brian Ferneyhough or Richard Barrett, nor as a starting point from upon the performer takes their own flight of imagination. Now I would argue that there is not really any such thing as an 'objective' performance of a score, no matter how precisely detailed the notation: a performer's own distinctive sound, how a chord is voiced or spread, how a trill or other ornament is executed, seem all small details when listened to individually, but the totality of these aspects create quite distinctive and variegated overall results. Willcock is aware of these parameters, and to a certain extent he takes as read the fact that a performer will bring a certain amount of their own subjective pre-conceptions to a work. While many of his pieces are written with particular performers in mind, Willcock remains interested in the ways in which performances differ when the works are taken up by different instrumentalists.

However, one might ask why Willcock, so concerned with maximum specification of his results, does not turn to the exclusive use of electronics, so that performances can be guaranteed to remain consistent in nature? To this, Willcock replies that he remains interested in the theatrical dimension of live performance, but also in the particular compositional constraints imposed by the limitations of performers and instruments.. These provide particular boundaries to areas of activity which would not exist in the same way with electronics. For example, *Modulor* (1992) for trombone, piano and electronics, ends with the trombonist playing repeated notes ever more quickly until what is roughly the fastest speed possible is attained. With a synthesised trombone, there would be no particular reason to stop at this point. These considerations are of greater importance to Willcock than the neo-expressionistic exploration of players being pushed to hysterical extremes.

In the extent to which Willcock's music is prepared to bypass many historically-derived characteristics of Western classical music in favour of more earthy and

immediate ways of producing a musical effect, one might detect elements of a primitivist aesthetic. Certainly his music is direct, dramatic and invigorating, rather than beautiful or refined. Like the earlier Xenakis and to some extent Birtwistle, his pitches are of importance more for their contour than harmonic properties. Thus one attains a degree of saturation that precludes any recognisable sense of harmonic progression. But for Willcock, perhaps, functional harmony (with or without clear tonality) is too much of a bourgeois conceit to be currently of use, whereas creative use of other parameters suits his needs much better. This approach can seem didactic and unsubtle at times, but it certainly enables a music that almost always creates a striking impact.

## **Modulor (1992)**

*Modulor*, for trombone, piano and live electronics, written for John Kenny and Markus Stange, is to my mind one of Willcock's most captivating and distinctive works. It was composed during and immediately before the period when he was resident in the Akademie Schloss Solitude in Stuttgart, and was an attempt to make a bold, arresting and challenging musical statement. Compositionally, it provides a good example of most of Willcock's characteristic techniques, which is why I have chosen to detail its construction here.

The title of the work comes from Le Corbusier's book of the same name. The score contains the following quotation:

An implacable mathematics and physics reign over the forms presented to the eye,... Their agreement, their repetition, their interdependence, and the spirit of unity or of family which binds them together to form an architectural expression, is a phenomenon which is as supple, subtle, exact and implacable as that of acoustics. [5]

The trombone part is immensely virtuosic, truly pushing the instrument to the bounds of its possibilities (one trombonist who recently performed the work commented that it made Xenakis's *Keren* seem child's play in comparison!), and makes much use of flutter- and rapid single-tonguing, and breath tones. The use of the piano was at this time unusual for Willcock, who considered the instrument too tied in with 19th century culture to be utilisable by him. Only once previously, in *In the Shadow of Ancient Music* (1988), had he used the piano, and even then the performer had to play a variety of percussion as well as the keyboard. In *Modulor*, however, Willcock found for the first time ways of reinventing the piano, using vectorial writing involving glissandi that shift between white and black notes (with are not always the most comfortable device to execute!) and lines of continuously moving disjunct chords, as well as many rapid repeated notes and resonances arising from the use of silently depressed pitches. To date, he has only completed one short solo piano piece, *The Persistence of Melody*, written for the 50th birthday of Michael Finnissy, in which a melodic line struggles to remain intact amidst increasingly violent activity around it.

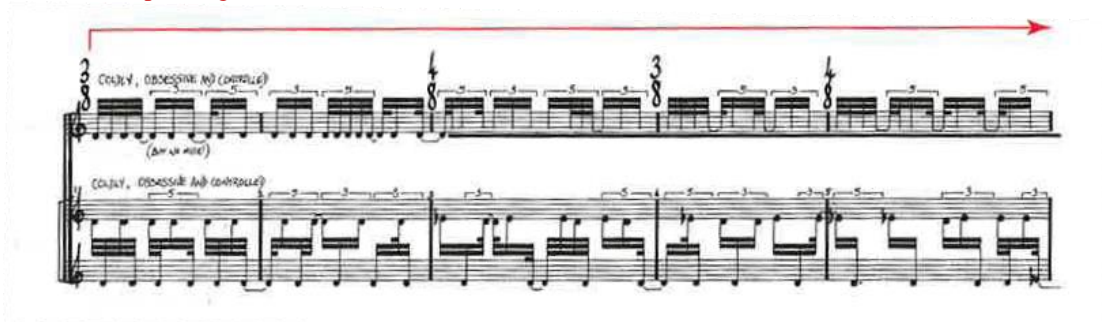
The electronics consist of amplification, digital reverberation and ring-modulation. The trombonist controls the reverberation using a foot-pedal, to parallel the piano's sustaining pedal, and while Willcock also suggests the possibility that the two performers could control their respective ring-modulation using foot-pedals, the difficulties of the piece are already substantial, so this is better performed by a sound

projectionist. Both instruments are modulated by a single sine-wave with a constant frequency of 293.66 Hz, which is the D immediately above middle C. The amplification is used to balance between the natural instrumental sounds and the modulated signal. The ring-modulation is used on a sliding scale between extremes of 0 and 100, whereby 0 indicates no modulation and 100 represents a gain sufficient that the dynamic of the modulated signal will equal that of the natural instrumental sounds as they appear in the performance acoustic.

The structural processes occurring in the piece are always clear and distinct, presenting starkly contrasted material types in various states of flux. Before embarking upon the composition of any work, Willcock makes notes of the range and possibilities of the instruments concerned (usually in consultation with the projected performers) then creates a table of material types, most of which if not all are used in the final work. The following are the main material categories for *Modulor*:

**A. Widening Vector.** Statistically generated rapidly reiterated continuous pitches around one central pitch, in both instruments, 'Coldly, obsessive and controlled'. Irregular rhythmic values. Exponentially expanding tessitura. Trombone often has long glissandi, within which rhythms are pulsated ([Example 1a](#)).

A. Expanding vector



Example 1a.

As this material progresses, a modified form of material is introduced: A'. Like A but more staccato and fragmented (no glissandi in trombone), 'Dry, broken; Hammered, distracted' ([Example 1b](#)). Described as 'ruffling' in the sketches.

A' Material



Example 1b.

In the third large section, this material takes an intermittent form between **A** and **A'**: **AA**. Trombone glissandi now wider and unpulsated. Piano part interspersed with silences, thus becoming more fragmentary, and expanding from single notes to chords, more and more widely spaced. Dynamics mostly either *p* or *f*, though not simple alternation.

**B. Arpeggios.** Two fundamental material types: (a) Wild arpeggiated figures in both instruments, ascending contours, irregular rhythms, including some glissandi in trombone part. Followed by silence or resonance ([Example 2a](#)). In the first occurrence of this (a) material only, chords and glissandi in the piano right hand are also included; (b) Grace note arpeggios, which ascend towards either repeated notes in the piano or very rapid high pitches in the trombone, within a restricted tessitura, then descend. Arpeggios in either direction usually end with a staccato chord in the piano ([Example 2b](#)). The components of this (b) material gradually detach themselves from each other.

Progressively, various forms of fragmentary material intrude upon the silence:

- **Pointillist.** Irregular staccato pitches in trombone, 'Clipped, unconnected' ([Example 2c](#))
- **Breath Tonguing.** Glissandi on rapid single tonguing, with no notes sounding ([Example 2d](#)).
- **Brooding.** Low glissando on trombone, with rapid permutations of combinations from 3-4 low notes on the piano ([Example 2e](#)).
- **Trills.** Usually initiated with a *sfz* chord and ended with a grace note arpeggio. These do not appear until the third large section of the piece ([Example 2f](#)).
- **Static Moment.** Arpeggiated grace-note figure eventually containing centres of preset pitch bands for each instrument. This figure appears 18 times during the course of the piece: for the first 13 of these the actual pitches are statistically close to these central values, and gradually 'crystallise' towards the pitch centres. The 14th to 18th occurrences are precisely all the pitch centres and are consequently identical. ([Example 2g](#)). This material only occurs once in the first large section, then with increasing regularity through the third section through to the end.
- **Chords.** Extension of single chords in other materials ([Example 2h](#)).

**B. Arpeggio A**      **Pointillist**      **Breath Tonguing**

The image shows a musical score for Trombone and Piano. The score is divided into three sections: 'B. Arpeggio A', 'Pointillist', and 'Breath Tonguing'. The 'Pointillist' section is marked 'Cresc.' and the 'Breath Tonguing' section is marked 'sfz'. The score shows complex arpeggiated figures and staccato notes in the trombone part, and chords and glissandi in the piano part.



5/B. Arpeggio b

Handwritten musical score for Example 2a-e. The score is in 3/8 time and features a section labeled "5/B. Arpeggio b". The notation includes a treble clef, a key signature of one flat, and various musical markings such as "cadenza, conchissimo", "cadenza, conchissimo", and "p". The score is divided into measures, with some measures containing arpeggiated figures.

**"Brooding"**  
Example 2a-e.

Trills

Handwritten musical score for Example 2f. The score is in 3/8 time and features a section labeled "Trills". The notation includes a treble clef, a key signature of one flat, and various musical markings such as "p" and "f". The score is divided into measures, with some measures containing trills.

Example 2f

Static Moment 1

Handwritten musical score for Example 2g. The score is in 4/8 time and features a section labeled "Static Moment 1". The notation includes a treble clef, a key signature of one flat, and various musical markings such as "p" and "f". The score is divided into measures, with some measures containing static moments.

Static Moment 8

Static Moment 8

Handwritten musical score for Example 2g. The score is in 3/8 time and features a section labeled "Static Moment 8". The notation includes a treble clef, a key signature of one flat, and various musical markings such as "p" and "f". The score is divided into measures, with some measures containing static moments. A "SLOWER" marking is present above the score.

Static Moment 15

Static Moment 15

Handwritten musical score for Example 2g. The score is in 3/8 time and features a section labeled "Static Moment 15". The notation includes a treble clef, a key signature of one flat, and various musical markings such as "p" and "f". The score is divided into measures, with some measures containing static moments. A "SLOWING, FINISCH" marking is present above the score.

Example 2g

**Chords**

Example 2h

**C. Chorale.** This material occurs only once, at the beginning bridge to the second large section. Trombone has sine wave deviation around central C quarter-sharp, while piano progresses from single isolated notes to chords, both parts with increasing attack density. Maximum ring modulation for piano, trombone progressing from zero to maximum ring modulation during the course of the process ([Example 3](#)).

Example 3

**D. Muted trombone** has three types of material: irregular in/out breaths, wailing glissandi, and more *Breath Tonguing*. Piano has sustained low pitches, following a descending vector, with staccato chords in the upper half of the instrument, density 3, 4, 2 or 5 notes in order of probability, alternating with silences. No ring modulation for trombone, but maximum for piano ([Example 4](#)).

**Short-Wave Loops.** A fragment which imitates the sound of a short-wave radio sample, chosen by Willcock from a large selection, generally subjected to gradually evolving processes. There are 11 of these loops, the initial state of each of which becomes progressively shorter, such that from 7-11 the loops are generated from single pitches or chords. They are all shown in [Example 5](#) (parts 1, 2 and 3). Some of these loops resemble other material, e.g. the 1st loop resembles the first *Arpeggio* material, the 5th loop has repeated piano grace notes and high trombone reiterations as also in the *Arpeggio* material, whilst the pulsating glissandi in the later loops are echoed, albeit in a different register, in some of the later *Brooding* material. The manner in which the short-wave signals were transcribed was to some extent influenced by the nature of the other material in the piece.

Handwritten musical score for Example 4. The score is written for piano and violin. The piano part is in the upper system, and the violin part is in the lower system. The score is divided into two systems. The first system is in 4/8 time and includes the instruction "RECURRING OR AHEAD OF BREATH ETC. BECOME CRISP" and "NEITHER BLIND NOR UNWISELY CHOICE IN HER OWN MIND". The second system is in 3/8 time and includes the instruction "5". The score is marked with various dynamics and articulation marks.

Example 4

Handwritten musical score for Example 5. The score is written for piano and violin. The piano part is in the upper system, and the violin part is in the lower system. The score is divided into two systems. The first system is in 3/8 time and includes the instruction "SLOWER" and "♩ = 69". The second system is in 3/8 time and includes the instruction "FASTER". The score is marked with various dynamics and articulation marks. Red arrows indicate the tempo changes between the two systems.

The image displays a musical score for "Example 5", consisting of vocal and piano parts. The score is divided into several systems, each with a red bracket indicating a section.

- System 1 (Vocal):** Labeled "FASTER" and "1-35". The vocal line includes the lyrics "But all eyes around the world". A red bracket spans the first two measures, with a red arrow pointing left above it.
- System 2 (Piano):** Labeled "FASTER" and "1-35". The piano accompaniment features a rhythmic pattern of eighth notes. A red bracket spans the first two measures, with a red arrow pointing right above it.
- System 3 (Vocal):** Continues the vocal line. A red bracket spans the first two measures, with a red arrow pointing right above it.
- System 4 (Piano):** Continues the piano accompaniment. A red bracket labeled "7b" spans the first two measures.
- System 5 (Vocal):** Continues the vocal line. A red bracket labeled "9" spans the first two measures.
- System 6 (Piano):** Continues the piano accompaniment. A red bracket labeled "8" spans the first two measures.

The score includes various musical notations such as clefs, time signatures, dynamics (e.g., *pp*, *mf*), and articulation marks. A green dashed line with a scalloped edge connects the systems, indicating the flow of the music.

Example 5

The following is an overview of the structure of the work:

### Section 1

quaver=104

1. **A1.** Around central D. [23.6"]  
**B1.** One single arpeggio (a). During silence both RM's to 100, then back to 0.5. [8"]
2. **A2.** Progressively interrupted by **A'**. [26.2"]  
**B2.** Includes types (a) and (b), and **Pointillist 1, Breath Tonguing 1, Brooding 1.** [16.2"]
3. **A3** More and more interrupted. [37.2"]  
**B3** Includes **Breath Tonguing 2** (at which point piano RM goes to 100), **Pointillist 2** (at the end of which piano RM goes to 0), **Brooding 2**, and most importantly, **Static Moment 1.** [24.8"]
4. **A4** 'Furious, obsessive and uncompromising. Many interruptions. Shifting pitch centres. [61.7"]  
**B4** Includes **Pointillist 3, Brooding 3.** [28.3"]

### Bridge-Passage

(still quaver=104)

1. **C** 'Shining with the most beautiful tone(!)' in trombone, piano 'poised yet mechanical'. Piano RM 100%, trombone RM progressing smoothly from 0 to 100. [38.4"]
2. *Slower* (quaver=69)  
**Short-Wave Loop 1.** This occurs at the golden section of the work counting from end to beginning. 10 13/15 iterations of basic material. Minor pitch development in trombone, exact repetition in piano [23.6"]. With long held low single note in piano at end. [9"]

### Section 2

(still quaver=69, trombone muted for this whole section)

1. **D1** General permutation of material, descending pitch vector in low piano, some successive repetitions of chords in piano. [55.2"]
2. *Faster* quaver =112  
**Short-Wave Loop 2.** 12.5 iterations. Trombone narrows intervallic band, piano density (of attack and chords) decreases in left hand. [20.1"]
3. *Slower* quaver =69  
**D2** Pitch vector continues to descend, more repetitions in piano. [54.3"]

### Section 3

Faster quaver=104. The beginning time point of this section coincides with the golden section, counting from beginning to end.

1. **AA** After introduction (loud chord in piano and two glisses in trombone), longer glissandi in trombone, contours between a semitone and a tritone, gradual overall crescendo from *pp* to *ff*. Piano part fragmented, interspersed with silences, varying dynamics, tessitura increasing exponentially from single

note to most of keyboard. Ring-modulation 100 in trombone, 0 in piano, but suddenly up to 100 at end. [62"]

Willcock sees this material as forming a second bridge passage. I hear the reappearance of some of the material from the opening of the work as giving more of an impression of a recapitulation.

2. **Short-Wave Loop 3.** 11.25 iterations. Chord density in piano right hand increases. Both instruments RM 100. [13"]
3. **Short-Wave Loop 4a.** 1 2/3 iterations. No change. Both instruments RM 100. [1.4"]  
**B5.** Includes **Brooding 4, Pointillist 4** (at which point both RM's go to 0), **Static Moment 2, Trills 1, Breath Tonguing 3, Static Moments 3 & 4, Trills 2, Brooding 5** (at which point both RM's go to 100). [37.9"]  
*Slower* quaver=69 (comes in last bar of **B5** passage). **Short-Wave Loop 4b.** 11 1/3 iterations. No change. Now at slower quaver tempo than in **4a**, but basic units altered so the resultant tempo is the same. [10"]
4. *Faster* quaver=88 **Short-Wave Loop 5a.** 4 iterations. Clusters in piano left hand ascending. Pedal in both instruments from 2nd iteration. [2.7"]  
*Faster* quaver=104 **B6.** Includes **Trills 3** (at which point both RM's go to 0), **Static Moment 5, Breath Tonguing 4, Brooding 6, Pointillist 5, Static Moment 6, Trills 4, Static Moments 7 & 8** (during the latter of which both RM's go to 100. Isolated repeated notes from grace note figures connect with next passage. [31.4"]  
*Slower* quaver=88 **Short-Wave Loop 5b.** 10.5 iterations. [7.2"]
5. *Faster* quaver=120 **Short-Wave Loop 6a.** 8 iterations. Trombone and piano left hand descending. [4"]  
*Slower* quaver =104 **B7.** Includes **Static Moment 9, Trills 5, Static Moment 10, Pointillist 6, Breath Tonguing 5, Static Moment 11, Trills 6**(at which point both RM's go to 100), **Chords 1.** [26"]  
*Faster* quaver=120 **Short-Wave Loop 6b.** 8 iterations. Now piano left hand static. [4"]
6. *Faster* quaver=160 **Short-Wave Loop 7a.** 16 iterations. Trombone ascending. [6"]  
*Slower* quaver=104 **B8.** Includes **Trills 7, Static Moment 12** (just before which both RM's go to 0), **Trills 8, Static Moments 13 & 14** (the latter the first fully crystallised), **Pointillist 7, Brooding 8.** [21.25"]  
*Faster* quaver=160 (in last two quavers of above passage) **Short-Wave Loop 7b.** 2 iterations. [0.75"]
7. *Slower* quaver=104 **Short-Wave Loop 8.** Basic material just a semiquaver. 20 iterations. Trombone part descends. [5.8"]  
**Short-Wave Loop 9a.** Similar to loop 8, but faster iterations (15). Trombone ascends. [2.9"]  
**B9.** Includes **Brooding 9, Trills 9, Static Moment 15, Chords 2, Static Moments 16, 17, 18.** [17"]  
**Short-Wave Loop 9b.** 9 iterations. [1.9"]  
**Short-Wave Loop 10.** Even faster. Trombone descends. 27 iterations. [3.9"]  
**Short-Wave Loop 11.** Faster still (limit of possible repetition speed on trombone). 29iterations. [3.3"]

Thus one obvious level of development is the way in which the piece progresses from long expositions of gradually developing material at the outset towards frenetic

montage between materials at the end. Some of the boundaries between material are slightly blurred or differ between the two instruments. Also tempo changes towards the end become staggered with material changes.

The piece uses a series of duration bands from which all levels of durational information are generated:

Duration		Attack Densities		
Centre	Band	Centre	Minimum	Maximum
686.6000	0	0.0015	0.0008	0.0021
424.3421	1	0.0024	0.0013	0.0034
262.2579	2	0.0038	0.0021	0.0055
162.0843	3	0.0062	0.0034	0.0089
100.1736	4	0.0100	0.0055	0.0144
61.9107	5	0.0162	0.0089	0.0234
38.2629	6	0.0261	0.0144	0.0378
23.6478	7	0.0423	0.0234	0.0612
14.6151	8	0.0684	0.0378	0.0990
9.0326	9	0.1107	0.0612	0.1602
5.5825	10	0.1791	0.0990	0.2592
3.4502	11	0.2898	0.1602	0.4195
2.1323	12	0.4690	0.2592	0.6787
1.3178	13	0.7588	0.4195	1.0982
0.8145	14	1.2278	0.6787	1.7769
0.5034	15	1.9866	1.0982	2.8750
0.3111	16	3.2144	1.7769	4.6519
0.1923	17	5.2010	2.8750	7.5269
0.1188	18	8.4154	4.6519	12.1789

The ratio between two adjacent bands always corresponds to the golden section. The centre value of band 0 is the length of the whole work, whereas the centre value of band 18 is the length of a quintuplet at quaver = 104. In general, all durations were calculated in terms of seconds, and tempo is adjusted accordingly.

An examination of the short-wave loops gives a clear idea of how these bands work. In order to realise the series of proportions that Willcock desired, he found that a total of 11 loops provided the most desirable solution. He first determined the required proportion of loop material to other material (roughly a quarter), then worked out a duration sequence with constant ratios, for how long each loop would appear in its material sequence.

The whole of the **Short-Wave Loop 1** (not including the sustained pitch at the end) lasts almost exactly the centre length of band 7 (23.65"), and the duration of one loop is the centre length of band 12 (2.13"), whereas the whole **Short-Wave Loop 11** is the centre length of band 11, and one loop approximately that of band 18. The durations used in all intervening short-wave loops are a smooth interpolation between

these two extremes, so that again the ratios between adjacent loops remain roughly constant. Some of the material in **Short-Wave Loops 2 & 3** overlapped with other material and thus was suppressed. This accounts for some discrepancies in the durational values around these places.

Of course **Short-Wave Loops 4-9** are all split into two parts, with other material placed in between, and the end of one type of loop material runs straight into the next. This can be seen as a metaphor for the situation on American news programmes, where endless commercial breaks interrupt the programme, sometimes between news items, sometimes in the middle of them. In this sense, the demands of the advertising industry actually serve to fragment one's attention span, which has wider effects upon the nature of modern communications, producing the culture of the soundbite and of MTV-style videos..

So one should think in terms of continuous passages of loop material, whose boundaries do not correspond with those between different loops. Thus there are a total of 8 continuous such passages. The lengths of these is again an interpolation between bands 7-9. This produces a type of structural phasing effect, by which the lengths of loops and of continuous passages of loop material gradually go out of phase. The distance between continuous loop passages is also interpolated from duration bands, so that they gradually get closer together.

Similar interpolations between duration bands provide the lengths of other material types, as should be clear from a cursory glance at the chart and the durations of different passages. The attack densities are the reciprocal of the durations. Durations of individual notes, and thus quantity of attacks, are statistically generated from duration bands, as are the durations of pitch vectors, an intermediate level of durational working.

For example, in the **AA** section, the length of the trombone pitch vectors moves from Band 9 to Band12, while the lengths of the piano aggregates move from Band 11 to Band 14. Overall, the choice of pitch vectors, or of pitches in general, is slightly less systematic. All rigorously derived quantities do in fact undergo a degree of quantisation in order to accommodate the practicalities of the instruments.

The piece moves from a predominance of the 'composed' material of the first section towards its usurpation by the more 'mechanised' material of the short-wave loops. The trombone part becomes-progressively more manic and dense throughout the piece, whilst the progress of the piano is more arc-like. In general, more and more intercutting of material, or dialectical montage, occurs over the course of the work. On the other hand the **Static Moments** coalesce, but this merely adds to the polarisation of the situation. The whole piece can be read as a musical analogue of the individual in late capitalist society, in which the contradictions become more and more apparent. It is because of the arching nature of Willcock's musical oppositions that the piece is able to achieve this state of affairs with such clarity.



## Footnotes

1. Arnold Whittall, 'All contradictions reconciled?', on the music of York Höller, in *The Musical Times* No. 1864 (Autumn 1998), London.
2. Willcock, ['A Lecture on my work in general and 'Cruelties' in particular.'](#)
3. *ibid.*
4. *ibid.*
5. See for example "Northern Light" on the music of Christopher Fox, *The Musical Times* No. 1863 (Summer 1998), London, "Ferneyhough's Writings" in *TEMPO* 203 (January 1998), London, 'Archetypal Experiments' on the music of Howard Skempton, *The Musical Times* No. 1856 (October 1997), London, also published as 'Aufrichtigkeit und Unschuld' in *MusikTexte* Heft 75 (August 1998), Köln, and 'The Piano Music' in *Uncommon Ground: The Music of Michael Finnissy*, ed. Brougham, Fox, Pace, Ashgate Ltd., Aldershot, 1997.
6. Le Corbusier quoted in *Le Corbusier - Architecture and Form* by Peter Blake, Penguin Books, London, 1963.

## Ian Willcock: List of Works

- Miners** (1985) for four amplified, treated voices (SATB) and 4 channel tape, 5'.  
**The Committee Hold Up a Mirror** (1987, rev. 1988) for clarinet, saxophone, viola, trombone and 2 channel tape, 20'.  
**In the Shadow of Ancient Music** (1988) for oboe, 2 flutes, 2 percussion and piano (+percussion), 11'.  
**For the Republic** (1988) for alto-trombone, marimba and 2 channel tape, 8'.  
**Face** (1989) for narrator and 2 channel UPIC tape, 5'.  
**I Memory** (1989) for alto-flute, viola and guitar, 6'.  
**Eye, Survey the World!** (1989) for 6 body-percussion performers, 8'.  
**Start!** (1989) for viola solo, 6'.  
**The Book of Attacks** (1990) for steel-pan orchestra (13 players), 10'.  
**Cruelties - a catalogue of grotesque events with real-life examples** (1991) for mezzo-soprano, oboe, clarinet, viola, percussion and 2 channel tape, 17'.  
**Persistence** (1991) for alto-flute solo, 6'.  
**Snare** (1991) for harp and bass-flute, 11'.  
**Schrenslompen** (1990-92) for mezzo-soprano and 2 percussion, 15'.  
**Modulor** (1992) for trombone, piano and live electronics, 12'.  
**The Book of Shadows** (1993) for voices and early instruments, 21'.  
**Schön...** (1993) for electric guitar, two violins, viola, cello and double bass, 13'.  
**A Book of Maps** (1994) for piano and percussion, 12'.  
**A Catalogue of Targets** (1995) for bass-flute (+picc.), oboe, Eb clarinet, violin, viola, cello, double bass, piano and percussion, 18'.  
**The Resistance of Water** (1996) for cor anglais solo, 7'.  
**The Persistence of Melody** (1996) for piano solo, 2'.  
**The Book of Density** (1997) for bass clarinet, bassoon and piano, 8'.  
**The Onset of Turbulence** (1998) for electric guitar and sampler, 8'.