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Towards the Spiritual – the electroacoustic music of Jonathan Harvey

The emotional response to music, whether affective or intellectual, is often experienced at a profound level. It is even likened by some to a kind of spiritual enlightenment. Electronic and computer technology has provided new musical materials and resources for composers this century, and has broadened the field of musical expression; perhaps the electronic medium also has a particular contribution to make to the kind of response and the depth of musical experience we can have as listeners.

One composer for whom the spiritual function of music is especially important is Jonathan Harvey. One only has to look at the title of his Ph.D thesis – *The Composer's Idea of his Inspiration* – or indeed at the titles of his pieces – *Inner Light*, *Bhakti* (Devotions), *Smiling Immortal*, *Be(com)ing*, to mention but a few – to realise that Harvey has identified a new ideology in contemporary art which is influenced by Eastern philosophy and moves away from a post-Renaissance preoccupation with individual expression. In his opinion, this has been strongly reflected in two major developments in Western music:

Serialism, and electronic music, with its ability to get into unknown sorts of sound, both suggest a new world which could be called spiritual; or one might speak of a greater awareness of what is. It's a matter of the expansion of the narrow self . . . The magic is in the composer inviting people to expand their individuality into a new region and thereby experience selflessness, egolessness, without losing the sense of a connection. It's the function of art to make one expand one's consciousness so that a narrow, insecure, individual self disappears and a larger self, the absolute is brought to consciousness.¹

Why does he single out serialism and electronic music? Firstly, serialism provides an alternative to bass-line dominated harmony and form. It is free from

tonal hierarchies and enables structures to be formed symmetrically around an axis. Musical cells may be so configured that even in retrograde or inversion they are reflections of the same essential idea. Electronic music is also free from tonal 'gravity' in the sense that synthetic sounds may be constructed at will, not necessarily in accordance with the hierarchical harmonic series. Electronic sounds lack what Harvey calls 'externality': in other words, they have no recognisable physical source and thus acquire a disembodied quality which can be exploited for its associations of weightlessness and timelessness. Both serialism and electronic sound synthesis may be used to create music which revolves rather than proceeds, music of stasis in which motion and development take place within a much larger stillness. (Such ideas, though perhaps without the spiritual overtones, go back to the palindromic pitch and rhythmic configurations of Webern and Messiaen, and the aleatoric works of Boulez and Stockhausen.) It is as if in breaking free from goal-orientated finite forms, one begins to reach towards the infinite.

The Inner Light trilogy

Ideas such as these began to reach fruition in Harvey's music after his 'massive Pauline conversion' to Stockhausen in the late sixties and his subsequent studies at Princeton with Milton Babbitt. His *Inner Light* trilogy (1973-7), which is dedicated to the exploration of timbre in relation to structure, is a kind of metaphor for the concepts of expansion and integration expressed in his writings. It is an expanding series of works each scored for a different ensemble plus tape and written according to strict serial principles.

Example 1

Inner Light (1), bar 8 (unmeasured), pp. 10-11 of Novello score

The musical score for Example 1 consists of three staves: Violin (Vcl.), Piano (Ptte.), and Tape. The Vcl. staff features a melodic line with dynamic markings 'pp' and 'espress.'. The Ptte. staff has a corresponding line with 'p' and 'l.v.' markings. The Tape staff shows a transformation from 'pitch' to 'harmonic space' and includes a box labeled '9' and 'beats.....'. A bracket labeled '22'' spans the first two staves. The score is unmeasured.

Inner Light (1) (1973), for seven instruments and tape, sets up a continuum between instrumental timbre and structural harmony whereby the harmonic fields (or what Harvey calls harmonic 'spaces') of the piece are formed in approximation to the spectral analyses of the instruments in the group. The work journeys along a path from indistinct sound, via the establishment of timbre and pitch to three 'crystallised' chords which represent the formal structure of the piece: one low and dark, one high and bright and one mediating chord.

The basic row, from which these final three chords are taken, is created in the first section. At the beginning, noise gradually changes into simulated cello sounds in the tape on low C, the real cello's first note. All twelve pitches are introduced in this way, the tape always giving a cue for the real instrument to enter on its associated note. The partials of each simulated sound on the tape are then increased in volume until they are heard as a chord. Thus timbre 'flowers' into harmony and harmonic fields from which new sets are drawn (Example 1). Each note is further linked to a particular rhythmic figure, so that the instruments finally become characterised on four related levels: timbre, harmony, derived pitch material and rhythm. Timbre here is used as an integrating medium through which the interrelationship of the different musical parameters is explored.

In *Inner Light* (3) (first performed in 1976), timbre is used to 'enlarge' instrumental identity. The work is scored for full orchestra and 4-track tape – an important role of the tape being to transform the waveform of one instrument into that of another. For example, from figures 126-7, a horn sound is extracted from the orchestral texture, projected around the concert hall where it changes into a flute sound, and sent back to the stage speakers to be taken up by the orchestral flute.

Inner Light (3) is probably the most structurally complex of all three works. It is organised on several distinct levels² (of pitch, rhythm and timbre) all of which involve a process of expansion and contraction. The basic set is one of expanding intervals. (The retrograde version is therefore one of contracting intervals; furthermore if inverted, the second half of the row retrogrades the first half.) (Example 2 (a) and (b)). Derived sets are generated from intervals of the basic set and form the substance of the musical material. Harmonic fields, or 'spaces' expand and contract on another level from tritones to semitones and even further to noise at four significant points. On the highest level is a background sequence of expanding intervals, whose constituent pitches slide off both ends of the audible scale one by one into silence.

Example 2
Inner Light (3) basic set



Expansion and contraction may also be seen in the rhythmic organisation, which gets alternately faster and slower and eventually does both simultaneously, loud chords articulating a slow tempo while the instrumental figurations reach the speed of alpha brainwaves.

The expansion of timbre is manifested in three ways. Firstly, each pitch of the basic set has an associated instrument or instruments, hence the orchestration at any point is governed by the number of pitches in the derived set. The instruments remain in the texture once they have entered, accumulating as background material to accommodate new instruments as they are introduced. Secondly, the piece begins, as do the other two *Inner Light* pieces, with indistinct, low sounds on the percussion and tape, from which clear, recognisable sounds emerge. Thirdly, and more significantly, instrumental identity is expanded through the tape transformations, each instrument becoming part of a much greater, all-embracing sonic world.

Inner Light (2) (first performed in 1977), the last of the trilogy to be written, also features the ideas of integration and expansion of the other two and in many respects makes explicit the ideology underlying all three works. It functions as the intermediary work, most obviously in the forces employed: chamber orchestra, five solo voices and tape. It is also the linking piece in terms of the musical material: the notes of its basic row are almost identical to those of *Inner Light* (1), except that notes 5 & 7, and notes 10 & 12 have been swapped around to ensure the intervallic symmetry of the two halves (Example 3).

Example 3
Inner Light (1)



Inner Light (2)



The piece begins on C, the last note of *Inner Light* (1) and ends on A, the first note of *Inner Light* (3). Serial proportions are extended from vowels and consonants to jumbled texts, invented nonsense language, speech and narrative. On the simplest level, *Inner Light* (2) explores the relationship between timbre, harmony and structure like *Inner Light* (1) only taking the human voice as the starting point rather than instrumental sounds. This is done at various points by translating the formant structures which characterise vowel sounds into audible pitches in the tape, which are then taken up by the strings to form chord sequences (Example 4).

While the tape has the same vital bridging function in these transformation passages as it has in the two other pieces, it also performs several other roles. Harvey uses it quite deliberately as a dramatic device, almost like a film sound track, as an accompaniment to the tenor's spoken narrative. This is an extract from *They* by Rudyard Kipling, in which the protagonist attempts and finally succeeds in making contact with the spirit world, symbolised by children. Thus, for

Example 4

Inner Light (2), bars 132-4, p. 25 of Faber score

example, children's voices break through the texture in the tape, speaking, singing, laughing and breathing, always through a distancing 'veil' of other noises.

A large part of this text is spoken over an important rising glissando in the tape during which formant chords and their fundamentals ascend repeatedly into inaudibility, the whole passage being punctuated by rising clusters in the organ. This both looks back to a similar passage in *Inner Light* (1) and looks forward to the expanding spaces of *Inner Light* (3) as the culminating work in this expanding series. Harvey writes:

The third is concerned with expansion itself, a reflection of the basic idea of the expansion of the consciousness towards God.³

This transcendental theme is encapsulated in the final text of *Inner Light* (2), a Meditation by Rudolf Steiner, in homage to whom the whole trilogy was conceived:

Ich schaue in die Finsternis. In ihr erstehet Licht, lebendes Licht. Wer ist dies Licht in der Finsternis? Ich bin es selbst in meine Wirklichkeit. Diese Wirklichkeit des Ich tritt nicht ein in mein Erdensein, Ich bin nur Bild davon. Ich werde es aber wieder-finden wenn Ich guten willens für den Gesit durch des Todes Pforte geschritten.⁴

(I gaze into the darkness. Light arises from within it, living light. Who is this light in the darkness? I am it myself in my reality. This reality of the 'I' does not step into my earthly existence, I am only an image of it. But I shall find it again when with goodwill for the spirit I have stepped through the gates of death.)

Mortuous Plango and Bhakti

The tape parts for all three *Inner Light* works were created using analogue equipment. Harvey had found working with the MUSIC IV BF sound synthesis program at Princeton 'too protracted' and was discouraged from experimenting further with digital computers (with the exception of *Veils and Melodies* (1978), now withdrawn) until trying his hand at IRCAM in 1980 with the assistance of Stanley Haynes to produce the now classic tape piece *Mortuous Plango, Vivos Voco*. The kinds of transformations mentioned earlier are the very basis of this work.⁵ Analysis of the spectrum of Harvey's pre-recorded bell sound gave the sequence of notes in Example 5. With this information, Harvey was able to resynthesize the bell in such a fashion as to have complete control over each partial, opening up the possibilities not only of transposition but also all manner of mutations. For example, normally the low partials of a bell decay slowly and the high ones quickly; by inverting this pattern the bell could be turned 'inside out'; rhythmic effects were achieved by virtue of the computer's ability to extract selected segments of bell sounds and mix them in sophisticated ways at great speed; there was also a rich area of hybrid sounds available from combinations of bell and treble voice sounds (the only other concrete sound used): a common one is a chord made up of bell partial notes sung by a 'chorus' of boys. (The same technique is used in *Bhakti*. The bell chord reappears in movement 7 with the partial notes distributed across all instruments.)

Example 5
Mortuous Plango

Bell Spectrum



There are many reasons why *Mortuous Plango* is so effective. The familiar sounds of bell and treble voice provide a foothold in a work which otherwise attempts to challenge accepted modes of listening, at the same time imbuing it with a sense of history (and even cultural heritage in a country famous for its cathedral tradition). The jumbled text is loaded with implied meaning, a feature which Harvey exploits in a manner reminiscent of Berio and Stockhausen. The composer has described how the pattern of the bell sound – the rapid disappearance of the high partials leaving the 'prolonged calm of the deep hum note'⁶ – suggested to him the progression from outwardness to inwardness, the central idea of the piece. This is reflected in the relationship between spectrum and structural harmony: eight of the lowest partials are

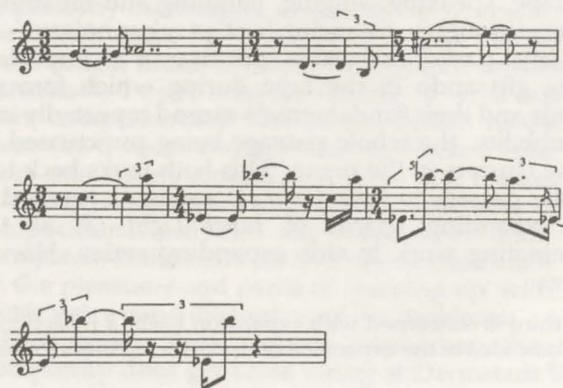
used as the tonal centres of the eight sections of the piece, so that the bell in a sense is the piece. We are taken inside the bell sound, quite literally in places when the different partials are assigned to different loudspeakers and diffused around the room (a feature which is obviously suppressed in the stereo version of the piece). The bell 'explodes' before our ears and yet remains intact, recognisably whole.

Mortuous Plango lasts about fifteen minutes. *Bhakti* (1982), in contrast, explores similar ideas over twelve movements lasting almost an hour. This is another 'child of IRCAM', born from the desire to use sophisticated sound analysis and resynthesis to expand the notion of timbre composition. Harvey returned here to the instruments-and-tape format of the *Inner Light* pieces but with the intention of disguising the tape by making the synthetic sounds as close as possible to the acoustic ones, thus releasing a fertile area of ambiguity. The familiar Harvey fingerprint of timbral transformation plays an important part in creating this ambiguity. In several instances instrumental sounds fan out into harmonies or melt into new sounds (especially at the end of movement 7), so that the attack, usually the clue-giving component of a sound's identity, becomes less dependable. Furthermore, the tape part itself has a strong instrumental character; not only are the sounds similar, but also the gestures, so there is a real sense of dialogue between the orchestra and its mirror image. However, transformations and instrumental ambiguity do not form the essence of *Bhakti* as they do the *Inner Light* pieces and *Mortuous Plango*; rather it is the concept of timbre as the sole conveyor of musical meaning which is being explored:

Once you strip away all complexities of relationship and simply listen to the single notes as such, another new music begins to become possible. If the melody is slowed down to such an extent that all that normally charms the mind into constituting pretty intervallic patterns is absent, the mind explores the timbre itself.⁷

Examples of this exploration of timbre can be found in the first movement and the ninth, both of which are dominated by the axial pitch G to the exclusion of almost all others in the desire to liberate that 'new music'; it is for this reason also that the macro-melody (Example 6), another symmetrical construction, is heard throughout the work in unison.⁸

Example 6
Bhakti, movement 3, bars 2-8 of Faber score



New Directions

In his article 'New directions: a manifesto', Harvey pinpoints what are, for him, the two most important attributes of electronic music. The first, as noted earlier, is the lack of 'externality' of synthetic sounds – the fact that they issue from no known instrument or identifiable physical locality. The second is that in electronic music individual notes may take on a new dimension through explorations of their acoustic structure and no longer be simply perceived as units of a musical argument:

Form there still is, of course. In a sense it is pure immanence (lack of identifiable source for sound), but also it is pure timbre (the exclusive construction of form from tinkering with timbre itself). 'Outer' colours are not used to colour an 'inner' abstract pattern, rather colour and pattern are one and the same. There is no more 'outer' and 'inner'. The pattern lies in the structure of colour itself. Everything has changed. We are getting closer to a more spiritual art in some sense.⁹

Harvey's more recent electroacoustic works seem to challenge these assumptions in a puzzling way. This has much to do with his current fascination with commercial technology: a Fairlight CMI used in *Nachtlied*, and various synthesizers and samplers used in *Madonna of Winter and Spring* and his more recent work *From Silence*.

Nachtlied (written in 1984 for piano, soprano and tape) is one of the best examples of Harvey's instrumental approach to the use of tape. By far the largest part of the material in the tape involves piano or vocal simulation, with clearly defined melodic lines and even polyphonic writing in places. Very rarely does the range of pitches in the tape part extend beyond the natural compass of the voice or piano, and the timbral or technical extensions which do take place serve to integrate the two sound worlds of voice and piano rather than adding a new dimension to each individually.

The work may be divided into two main sections corresponding to the two poems set (Goethe's *Wandlers Nachtlied* and Steiner's *Abends/Morgen*). Uniting the sections are semitonal cells with which harmony and melody are constructed and from which the basic twelve-note set is derived. Not surprisingly, the tape part is crucial to the structural unfolding of the piece. This is especially so of the second section, which is introduced in the tape with an ostinato from which the basic set emerges; the section is subdivided by interludes for tape or piano and much of the material here consists of a four-part polyphonic vocal texture for which the tape provides three simulated 'voices'.

What is particularly perplexing about this piece is the combination of some convincing electronic sounds with other very crude ones. The vocal simulation varies in effectiveness according to context: where words are clearly defined (e.g. 'tritt', 'ich', p.6, 'mein ich', p. 23), our recognition of the word makes up for deficiencies of timbre; the same applies to the 'massed voices', but the single vocal lines of the polyphonic sections are unsatisfying and rely on reverberation for added depth. The 'bells' at the beginning of the ostinato sound cracked and tinny, as do the 'perforations' of piano chords and the pitch shifting which is used liberally at several points (pp. 9, 15, 18) verges on the banal. Such timbral transformation as takes place in the tape part (e.g. p. 20) is more akin to that of *Inner Light* (3) than to the subtle effects of *Bhakti*.

The criticisms are harsh only because the quality of the electronic part is incommensurate with the beauty of the work, which is tightly constructed, lyrically expressive and emotionally rich. In addition, the tape part has a deeply symbolic function. The Steiner poem *Abends/Morgen* reflects on the nature of being, and speaks of the movement of the soul between the realms of the worldly and the divine through sleep, placing great emphasis on the 'radiant light' which illuminates the world of the Spirit. With reference to these images, the tape part seems to represent the Divine, by virtue of its lack of physical source (while the piano and voice represent the Worldly, their sounds issuing from visible and limited reverberating bodies). It also represents the human soul since it is able to move easily between the sounds associated with both states of being. By extension, therefore, the tape part is symbolic of the Spirit's affinity with the 'higher worlds', while maintaining its links with material reality. (To quote from Steiner again: 'all higher spiritual realities must be related to the physical world and man himself must act as a channel for them to flow into it.')

To a certain extent, however, Harvey's intentions are thwarted by the limitations of the technology. He can no longer claim, for instance, that the electronic sounds have no identifiable source: in his sense, of course, they do not since there are no reverberating bodies; on the other hand, the sounds and gestures (such as pitch shifts and 'perforations') are quite clearly recognisable as coming from a commercial machine, if not directly traceable to the Fairlight. Moreover, the concept of expansion of identity implied by the tape transformations is restricted by the resolution of the instrument; on reflection, Harvey probably had to keep the range of pitches in the tape part within the natural registers of the piano and voice in order to maintain fidelity. Although Harvey is well able to tailor this particular shortcoming to his needs, even make it appropriate to the piece, it is indicative of the instrument's inferiority, which in other respects is too intrusive for the work to be entirely successful.

By 1986, and the orchestral work *Madonna of Winter and Spring*, Harvey had turned to live electronics. Everything about this piece is large-scale: the orchestra, the number of electronic devices, the length, the necessary performance space, the conception. The thematic material is woven from twenty melodies which are both self-contained entities and also part of a circular chain. The reason for this, Harvey says¹¹, is that structural depth is not perceptible without memorability. If the melodies can be memorable in themselves and also coherent in combination, their various permutations in a musical texture will have many layers of meaning. Melody has always been of great importance in Harvey's music (for example, the macro-melody in *Bhakti*) although this kind of melodic 'addition' has only developed in his compositional technique in recent years. (It is the basis of a new tape work to be completed at IRCAM in the spring, as well as his new chamber work, *Tendril* (no electronics) and his latest electroacoustic work *From Silence*.) The melodies of *Madonna of Winter and Spring* grew from the seven harmonic spaces of the piece, all of which are symmetrical around an E/F semitonal axis. When the harmonic spaces are transposed down a minor ninth in the third section, the E/F semitone becomes an inverted pedal; when transposed up a minor ninth for the final section it becomes a bass, and anchors the new, twenty-first melody.

It is clear to see the motive for this kind of writing. Each melody is at once individual and a small part of a greater whole. The permutations offer a chance for the individuality of each one to be incorporated and thus transformed into a larger entity. That aside, the dense thematicism of the work's opening section allows a striking contrast with both the 'timbral' composition of Harvey's previous electroacoustic works and also the static central sections of *Madonna*. During the piece there is a shift away from discourse to what Harvey calls 'psychic music' – the intellect is abandoned. It is music of transition.

The electronics have two roles to play. One is simply to augment the orchestra – the two synthesizers (Yamaha DX1 (and TX816 voice bank extension) and Emulator 11) are used as orchestral instruments in the first section, participating in and articulating the musical argument. In this capacity they work well: most of the sounds used are percussive and augment the orchestral percussion effectively. Ring modulation and amplification (controlled from separate units) are also used for this purpose, expanding the timbral resources of the orchestra without detracting from its physical presence. The second role is to illuminate the path from discourse to spirit. Extended reverberation can 'freeze' any sound, prolonging it indefinitely or storing it for later output independently of the original instrumental gesture. Diffusion instructions are explicit in the score: any of the sounds may be sent on a journey across the acoustic space. Both of these effects draw our attention away from the abstract musical argument towards contemplation of the sounds themselves, and imply stasis.

The transition ('Descent') between the first and third sections is effected almost exclusively in the electronics. The synthesizers discard their orchestral guise and are simply generators of timbre. At the end, their two functions become merged when the instrumental sound of temple bells is sampled and looped by the Emulator to produce a continuous, breathing, pulsating sound which is both bell and something more. It has a new aura.

The two years which separate *Madonna of Winter and Spring* from *Nachtlied* are, as Harvey acknowledges, a long time in electronics. It is partly for this reason that the electronics in *Madonna* are more successful than in the earlier work, the sounds improved. It should also be said that Harvey's use of the instruments is more appropriate, in that he asks from them only such effects as they are capable of producing convincingly. The only reservation one has is that while the reverberation and diffusion techniques will not be greatly altered by the progress of technological evolution, the keyboards will date the work prematurely when they become obsolete, unless their parts are redesigned for succeeding generations of synthesizers.

One could be forgiven for supposing that Harvey's priorities had changed somewhat in recent years, in line with new trends and developments in music technology, for it is hard to reconcile the obvious keenness of his ear and fertility of his imagination in pieces like *Bhakti* or *Mortuous Plango* with the apparent lack of concern shown for the richness and depth of synthetic timbres in some of his more recent compositions. Yet preliminary tape sketches for his forthcoming IRCAM piece indicate that Harvey has by no means foregone the kinds of painstaking spectral manipulation which characterised his works of the early eighties. If anything, he seems keener than ever

to explore the paradox of interchangeable instrumental identity and to refine his control of the 'borderland' of sounds hovering just beyond the limits of conventional musical resources. Evidently each technological step forward has had its attractions for him: first, computers 'fast' enough, then synthesizers 'interesting' enough and now computers 'friendly' enough to suit his musical and artistic purposes. If we as listeners are not so ready to accept the compromises Harvey has made along the way, we can nonetheless look forward to his future electroacoustic works in the assurance that technological progress will only enhance the means at his disposal for realising his musical and spiritual goals.

Examples 2, 3 and 5 were designed on a Macintosh computer by Michael Alcorn and Dr Alan Marsden of Queens University, Belfast.

Unacknowledged translations are by Jane Curren, University of Durham.

¹ Quoted in Paul Griffiths, 'Jonathan Harvey', *New Sounds, New Personalities: British Composers of the 1980's* (London: Faber Music, 1985), pp.51-2.

² See Harvey's article 'Inner Light (3)', *Musical Times* (February 1976), pp. 125-7.

³ *Ibid.*, p. 125.

⁴ Quotation taken from the score of *Inner Light* (2).

⁵ See Harvey's article 'Mortuous Plango, Vivos Voco: a Realization at IRCAM', *Computer Music Journal*, Vol. 5, No. 4 (Winter 1981), or his chapter 'The Mirror of Ambiguity', *The Language of Electroacoustic Music*, ed. Simon Emmerson (London: Macmillan, 1986).

⁶ Emmerson, *ibid.*

⁷ Jonathan Harvey, 'New Directions: A Manifesto', *Soundings*, Vol. 11 (1984), p. 9.

⁸ This is the one melody, among many, which reappears throughout the work, always played in its entirety and in unison, which, by virtue of its own symmetry is reflective of the more complex symmetrical structure of the whole piece.

⁹ *Ibid.*, p. 10.

¹⁰ Rudolf Steiner, *Knowledge of the Higher Worlds*, trans. D.S. Osmond and C. Davy (London: Rudolf Steiner Press, 1969), p. 165.

¹¹ Jonathan Harvey, "'Madonna of Winter and Spring' – some structural and aesthetic thoughts', unpublished.