BOOK REVIEWS

Short Circuit

The Cambridge Companion to Electronic Music edited by Nick Collins and Julio d'Escriván. Cambridge University Press, £48.00 (hardback), £17.99 (paperback).

Among the more historically interesting musical events of 2008 were the recovery of the earliest surviving recorded item of British computer music; the resynthesis in California of one of the earliest known voice recordings from a phonautograph wave trace originally made by the Belgian Léon Scott in 1860; and the Scottish première of Jonathan Harvey's *Speakings*, a BBC Prom commission for 11 electronically voice-modulated solo instruments and orchestra. The most poignant perhaps is the Scott recording. From a high-resolution scan of a copy of the original waveform of a few seconds' duration, scratched in white by a trembling hog bristle on black wax-coated paper, scientists at Lawrence Berkeley National Laboratory have been able to recover the voice of a young female, presumed to be the inventor's daughter, singing a fragment of the second verse of 'Au clair de la lune' in a clear, unforced voice:

> *Au clair de la lune*
> *Pierrot répondit …*

The sample is posted online for anyone to hear.[1]

Apart from pleasure at hearing the natural beauty of so young a voice perfectly reproduced from a century and a half ago – very different in character from the politically conscious message to future generations recorded by Florence Nightingale on an Edison cylinder in 1890 – what is most astonishing is the quality of the sound, a tribute to the recovery technology, to the excellent acoustic design of Scott's second generation laboratory phonautograph, and not forgetting the contribution of Rudolf Koenig, Scott's scientific equipment consultant and manufacturer. 'We had a tuning fork side by side with the recording', remarked Earl Cornell, a scientist involved in the recovery of the voice signal, following its presentation at an Audio Science event at Stanford University on 28 March 2008. Because the Scott recorder was manually rotated, making the trace recording potentially unstable, it was Koenig's bright idea to record the waveform of a tuning fork along with the subject voice in an early form of SMPTE timecoding. By adjusting the waveform transfer so that the tuning fork trace was perfectly regular, it was possible to eliminate any distortion from the reproduced voice recording. In retrospect, the choice of lyric comes across as a mysterious premonition of Debussy's atmospheric *Claire de Lune* for piano, even hinting at the dark otherworld of Schoenberg's *Pierrot Lunaire*, a setting of poems by another Belgian, symbolist poet Albert Giraud, and deliberately staged in the oracular style of a cylinder recorded séance.

Performed by a University of Manchester Small-Scale Experimental Machine (a Ferranti Mark I) to a software program designed by Christopher Strachey, a friend of Alan Turing, and recovered from an archive acetate disc of a programme originally recorded in the autumn of 1951 for the BBC Children's Hour, the synthesized melody of *God save the King* is of interest as a symbolic act linking the development of computing and codebreaking devices in the Bletchley era during and after the second world war, with musical emblems of nationhood and a new age of information theory.[2] The association of computer and electronic music with Cold War intelligence initiatives, including speech recognition and interception, is a major reason why institutional electronic music developed in the piecemeal way it did, why it continued to be funded covertly by the military when progress was slow and musical results inconclusive, and why it has been so difficult to extract any coherent history of the period, delivered in sensible English, from surviving veterans of those early days. I have previously discussed the interconnectedness of electronic music, speech science, and cognition theory in relation to Stockhausen's *Gesang der Jünglinge*, and more particularly *Hymnen*, in my book *Other Planets* and elsewhere online.[3] The discovery of a British national anthem among the first computer-generated melodies, 15 years in advance of *Hymnen* and Max Mathews's FORTRAN encoded interpolation of *The British Grenadiers* into *When Johnny comes marching home*, is just another inadvertent

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[1] *http://news.bbc.co.uk/2/hi/technology/7318180.stm* (3 April 2009).

[2] Jonathan Fildes, '"Oldest" computer music unveiled'. *http://news.bbc.co.uk/2/hi/technology/7458489.stm* (3 April 2009).

[3] Robin Maconie, *Other Planets*. (Lanham, MD: Scarecrow Press, 2005), pp. 271–81. See also *www.jimstonebraker.com/maconie-looking_glass.htm* .

reminder of the culture of secrecy and hand-in-glove relationship of electronic music and the military culminating in the founding of IRCAM in 1977. I have no moral objection to this partnership, which has a long and authentic history. I only wish it had led to a greater number of musically interesting results.

Potentially the most exciting development in British electronic music of 2008 – and possibly ever – was the première on 18 August 2008 of Jonathan Harvey's BBC Prom commission *Speakings* for electronically modified solo instruments and orchestra. Although he now affects the enigmatic demeanour of a Yoda of sci-fi mythology, Harvey's long association with IRCAM, and his willingness (or so it seems) to lend his considerable compositional gifts in the service of the intelligence agenda that has guided Boulez and his team of software designers into new and interesting areas, make him worthy of more serious and protracted attention from a British electronic culture indelibly branded with the theme of *Dr Who*. To those in the know, the idea of imprinting the shapes and resonances of human speech on a live orchestra is open to be read as a Boulezian rejoinder, some 40 years in the making, to the fabulous cacophony of electronics and orchestra of Stockhausen's *Mixtur*. I have not heard the work. But the idea itself is exciting enough, and whether *Speakings* proves to be a finished attempt or merely a work in progress, the objectives of such a musical initiative are evidently of mainstream significance.

Events from 2008 cannot be expected to figure in a survey of electronic music published in 2007. However what a reader does have a right to expect from such a survey – particularly one compiled for use as an undergraduate textbook and published over the imprint of a major university publishing house – is an overview of sufficient completeness to allow a reader to place such newsworthy events in context and appreciate their significance, intellectual as well as musical. Electronic music may be regarded superficially as a minority interest, just one topic in a series dedicated to selected repertoires, composers, and genres. The difference is that whereas a basic understanding of western music is sufficient to come to terms with the specifics of most individual subject areas in such a list, in order for a reader to be safely inducted into the art and history of electronic music, a grounding in a range of disciplines is normally required, including the acoustics of musical instruments and environments, the physiology of speech, the design of electrical circuits, the implications of information theory, equal temperament, hi-fi and surround sound, and the philosophy of language.

One would also like to think that the present publication might acknowledge Penny Souster, former partner of Tim Souster and recently retired music books editor of Cambridge University Press. As an aspiring composer of electronic music and cofounder, along with Roger Smalley and Peter Britton, of the Stockhausen-inspired live electronics trio Intermodulation in the 1970s, Tim deserves at least a mention on the British portion of the honour roll, given that coeditor Nick Collins is himself a live electronics specialist. One looks in vain however for any mention of Tim, or Roger, or Peter. Or the group Intermodulation. Or even *intermodulation* as a process in electronic music. Indeed, having read the book and taken note of the uneven, Facebook qualities of contributor selection, writing, proofing, bibliography and indexing, it is hard to imagine the present volume as in any way a tribute to the professional and musical standards of Penny Souster's editorial legacy. The incoherence is in fact so striking, and the level of ignorance so marked in so many departments – literary, musical, and technical – as to incline an informed reader to view the book in its present state as the dismembered object of some kind of predatory struggle between the generations, from which the generation X representatives of an already out of date laptop aesthetic have emerged as temporary victors.

I am bound to feel a certain sympathy for the EMAS group of 1979 (now Sonic Arts) to which I once briefly contributed as club secretary and newsletter editor. That buoyant collective included Barry Anderson, inventor of the world's longest tape loop and provider of tape music for Harrison Birtwistle's *Mask of Orpheus*; Hugh Davies, indefatigable chronicler of electronic music and inventor of the *shozyg,* a portable sound effects machine; Simon Emmerson at City and Peter Manning at Durham, both of whom have published useful books on electronic and computer music; Richard Orton at York, who found amazing (and musically significant) things to do with industrial vibrators, even though nothing came of it; Michael Greenhough at Cardiff, who developed intelligent music software some years ahead of David Cope; Dave Malham, ambisonics systems expert, also at York; and Lawrence Casserley at RCM. When I last looked, most of these people were still around. They are not mentioned in the book. I regret that. British IRCAM composers are hardly to be seen. Jonathan Harvey gets four lines. George Benjamin does not even merit a mention. And yet this is the generation that laid the foundation for today's laptop artists, awarded them their PhDs, and eased them into their present positions of influence.

As a historian of music technology I am bound to say that the book is an interesting read all the same. Despite gaping holes – Clément Ader, French telephone engineer, inventor of the steam-powered airplane, and involuntary originator in 1881 of stereo broadcasting; Roberto Gerhard, contemporary of Varèse and composer in 1960 of *Collages*, Britain's earliest and best serious composition for orchestra and tape; even, amazingly, Peter Zinovieff, the voltage-control genius of EMS – the book's sins of omission and commission bear witness to the impoverished state of electronic musical knowledge at a moment in recent history when standards of musicology in this domain had sunk to what I hope may prove to be an all-time low. Objections to the term *electronic music* voiced separately but to identical purpose by Andrew Hugill, Denis Smalley in reflective mode, and Natasha Barrett, lead one to suspect that the compilers may originally have planned to title the book *The Cambridge Companion to Acousmatic Music*. Of course that would never do: the US market does not recognize the word. A confection devised by the GRM *musique concrète* leadership in Paris (in an attempt, I suspect, to deodorize what Boulez once famously described as 'a flea-market of purloined sounds with nothing of value to be found in any of them'), *acousmatic* grandly alludes to the *akousmatikoi* of the School of Pythagoras, those who were screened from observing the interval manipulations of the monochord by the *mathematikoi*. 'The whole point of acousmatic music', says Denis innocently, 'is that there is nothing to watch'. He doesn't get it. The underlying message of the *akousmatikoi* is that, seeing nothing, they understood nothing of what was going on behind the curtain.

To put it as succinctly as possible, the origins of *music* in all senses, including electronic, lie in the description and codification of ritualized speech, and thus incorporate a philosophy of meaning as expressed in accent, rhythm, and intonation (melody). The development, unique to the west, of the concept of a *navigable pitch space*, representing a uniform continuum in quantifiable steps in harmonious relation, articulated on a digital keyboard in digital notation, has enabled the invention in subsequent centuries of chiming clocks, the metronome, musical boxes and other programmed automata, in support of the Cartesian notion of *mechanical music and speech*, and thereafter robotics, developments in which Mozart, Beethoven, and Haydn were equally involved.[4] Stockhausen's

musical boxes in *Tierkreis* allude directly to the era of Mozart, the dramatic sounds of a weaving shuttle in *Trans* yet another reference to past technology, in this case the Jacquard weaving loom of the Napoleonic era, programmed by punched cards adapted from those of the fairground calliope. Mary Shelley's fantasy of *Frankenstein* is a modish 19th-century literary response to the Cartesian vision of programmable life forms embodied in the barrel organ, Maelzel's orchestrion, and von Kempelen's mechanical speech synthesizer, technology revisited in the 20th century by Conlon Nancarrow and revived to ghoulish effect in CD recordings from the 1980s of Gershwin's *Rhapsody in Blue* starring a Duo-Art paper roll recording of the long-dead composer as soloist. The oppressively dulcet tones of Thaddeus Cahill's electrically powered Dynamophone correspond to an updated online version of Benjamin Franklin's glass *armonica*, whose unearthly timbre adds a sense of paranoia to the Mad Scene from Donizetti's *Lucia di Lammermoor*, is imitated by the spooky celesta in the second of Schoenberg's Five Orchestral Pieces of 1909, and continues to inspire anxiety in the theremin wails of sci-fi film music in the 1950s.[5] While Boulez's timbral experiments in *Anthèmes* (1997) and elsewhere rightly defer to Jean-Claude Risset's contribution to FM synthesis and Andrew Gerzso's virtuosity in systems design and applications, they also attach to a much older tradition of organ emulation of instrumental and voice timbres, exposed in the deliberately defective mixtures of Messiaen's *Messe de la Pentecôte* and *Livre d'Orgue*, at the same time reaching back in history to early medieval times and beyond. The list goes on and on. There is no cutoff point.

Omitting to mention the electronic organ, or the acoustic organ, as though to suggest that present-day hard drives and portable software have nothing to do with history, would be bad enough from a scholarly perspective. The pity of it, however, is that in neglecting the contribution of electrical engineering to electronic music the editors of this Eurocentric pot-pourri have contrived to allow not only a seriously quantifiable American contribution, but also a fascinating recent history of British audio design, to sink without trace. All electronic music, however generated, makes its appearance on the world stage as sound recording in one or more channels, and is bound therefore to take conventional standards of recording excellence into account. For present purposes the golden age of British audio began

4 Arthur W.J.G. Ord-Hume, *Joseph Haydn and the Mechanical Organ* (Cardiff: University College of Cardiff Press, 1982).

5 Thomas Bloch, *Glass Harmonica*. Including works by Reichardt, Mozart, Beethoven, and the Mad Scene from Donizetti's *Lucia di Lammermoor* (with Montserrat Sanromà, soprano). Naxos 8.555295.

with the development of sonar (microphonic echolocation of enemy submarines), during the 1914–18 war.[6] The exacting requirements of spatial location of a sounding body underwater fed into the development of early surround-sound ('binaural') recording and reproduction systems by Alan Blumlein for EMI in the mid-1930s. This was the breakthrough from which Britain perfected essential aerial radar defence technology for the war of 1939–45, much of the documentation of which remains classified.

Since the success of any digital copy of a waveform characteristic of a sounding body relies, after conversion to digital at a sufficiently high bit rate, on the fidelity of the best analogue equipment (microphone, amplifier, recording medium), the knowledge base of computer music is necessarily grounded in electrical engineering (equipment design) and balance engineering (the best equipment allied to music of the highest quality performing in an optimum acoustic). For that reason a history of electronic music in Britain is incomplete that ignores the contributions of scientists and engineers such as Blumlein, Paul Voigt (inventor of the slack diaphragm microphone), Arthur Haddy of Decca (developer of *ffrr* extended range recording and the Decca 'tree'), and more recent geniuses Peter Walker of Quad electrostatics, Ray Dolby (who as founder of Dolby Laboratories in London in 1965 deserves the status of honorary Englishman), Peter Fellgett and Michael Gerzon, developers of surround-sound ambisonics from principles established by Alan Blumlein, and not least Ben and Jonathan Finn, authors of the music composing and printing software that has enabled musicians of all ages to come face to face both with the design possibilities, and the distinctive limitations, of computer synthesized instrumental sound. For an educational title on electronic music to ignore educational music software is frankly incomprehensible.

Traditional tone synthesis, as adopted by electrical engineers and religiously digitized by software designers thereafter, is grounded in the formulae articulated by Fourier and Laplace in the 18th century, which declare that the evolution of a dynamic system (such as a waveform, a melody, or the weather) can be adequately predicted from sufficient information of an initial state, along with the proposition that the 'initial state' represented for example by an acoustic waveform can be exactly expressed as the sum of a set of sine waves corresponding to partial frequencies of the same fundamental at appropriate amplitudes. This is the mantra. Says Alan Douglas, 'The work of Helmholtz and Fourier has proved that any wave form, no matter how complex, may be resolved into its individual frequency components by mathematical means. Not only their frequencies but their amplitudes can be calculated'.[7] What the statement actually means is that a curve represented instantaneously as a line trace on a two-dimensional surface can be represented exactly in mathematical terms as the sum of a finite number of simple oscillations. What it has incorrectly been assumed to imply is that the continuous process from which such a sample is taken can be extrapolated at will from the evidence of the sample, reading both forward and backward in time. That is arguably true, but only for stable tones of infinite duration. A widespread perception among scientists that western music consists exclusively of stable tones, and is notated as a succession of steady states, has been interpreted to justify imaginative fictions of computer music intelligence in recent history (Lejaren Hiller, Allen Forte, et al.), that the 12-tone equal tempered chromatic scale corresponds to a law of nature, and that classical music aspires to the disembodied perfection of a musical box.

A sample waveform corresponding to a microphone signal, representing a point location in a three-dimensional sound field, assumes that the phase and amplitude information obtained at a single location in time and space is sufficient to determine the totality of information from a source instrument at every point within an associated sound field. This is like taking an arbitrary 'V' cross-section of a microgroove recording and claiming to deduce an entire composition from it, or (in the Markovian world of predictive linguistics inhabited by Max Mathews and Stockhausen's information theory mentor Werner Meyer-Eppler) claiming to deduce an entire conversation from the tone of voice of a single syllable. How to predict and control the evolution of natural sounds, and speech, and thought processes, from limited samples, has been the overriding challenge of electronic music and associated information and cognitive research initiatives from their beginnings in the 1950s. The butterfly effect of chaos theory is only one of many fatal consequences of extrapolating from incomplete data. The alien metallic quality of so much electronic music, whether voltage-controlled in origin, as in Stockhausen's *Sirius*, or software generated, as

[6] Sir William H. Bragg, 'Sound in War'. In *The World of Sound: Six Lectures delivered at the Royal Institution* (1920) (London: G. Bell and Sons, 1933), pp. 161–96.

[7] Alan Douglas, *The Electronic Musical Instrument Manual: A Guide to Theory and Design* (1948) (Fifth edition, London: Sir Isaac Pitman & Sons, 1965), p. 32.

in Boulez's *Répons*, is another consequence of the same conceptual error, though both works have redeeming features.

To replicate a simple waveform is one thing. To compute the sound of a living instrument in a coherent acoustic space is another matter. Because computing power and data storage were so extremely limited in the earliest days of music programming, it was both logical and practically necessary to aim in the first instance for stable and controllable pitches of the most basic kind – sine, square, ramp waves – only after which, as computing power increased, would it be possible to compile software generators to simulate more agreeable tone qualities, in a development process modelled on existing tonewheel and circuit design approaches followed by previous generations of electronic organ designers. The fatal consequence of the orthodox approach to creating an electronic musical instrument is that tone signals generated as finished waveforms are invariably mono, and usually anechoic, existing in an acoustic void. The challenge of replicating the natural unpredictability (or phasiness) of sound in space was recognized by Lowrey, Compton, and other electronic organ manufacturers, who dealt with it by incorporating rotating speakers, or rotating paddles in front of speakers, Meyer-Eppler however recommending adding a subaudio tone to the mix, interestingly named an 'aleatoric', to avoid a merely mechanical tremulant effect.[8]

To predict or compute the evolution and movement of synthesized tones in a coherent virtual acoustic from a standing start is virtually impossible. The alternative is to synthesize musical sounds in a manner more closely resembling the behaviour of a real acoustic instrument. With the arrival of faster programming and vocal tract modelling in the 1980s it became possible to consider an approach to synthetic sound generation in a coincident multi-channel format compatible with ambisonics signal processing.[9] The option remains viable, and has stalled only because of inertia within the industry. What such an approach implies is understanding that the harmonic complexity and spatial orientation of the sound of a natural musical instrument arise from the resistance of a perforated resonator of a particular shape to the introduction of excess energy from a performer. That energy may be inchoate, in the form of continuous air pressure, or tuned,

as in the case of a bowed or plucked string. In either case the purity and variability of the resulting tone is a consequence of cooperative feedback between random energy and physical resistance, the first being expressively variable and the combination implying temporary storage and managed dissipation of a continuously varying energy input. This is not rocket science. It is learning to hold the bow correctly.

Of most of the contributors to the present volume, the less said the better. Exhortations like 'Electronic music is joyfully accessible to anyone with a computer of even limited power' make me want to gag. They are like saying brain surgery is available to anyone with a screwdriver. 'There should never be a minority category of "creative artist" from which most people are excluded' declares Laurie Spiegel. Look around. References to Francis Bacon's fabulous Sound-Houses are an embarrassment, even though Daphne Oram mentioned it first and is a better candidate for technical approbation than Percy Grainger and his vaunted Kangaroo Pouch machine (a Freudian conception if ever I saw one). Margaret Schedel does not seem to appreciate the difference between Scott's phonautograph and the mechanical model of the human ear of the same name created by Alexander Graham Bell. Pierre Schaeffer's concept of the 'sound object', based on gestalt theory, is at least intelligent and deserves better than airy dismissal as the precursor of modern sampling technology. Schaeffer, incidentally, was not the first composer to create music with prerecorded media, as often alleged. That honour belongs to Russell Hunting, deviser of the immensely popular Boer War fundraising 78 rpm disc *The Departure of the Troopship*, described by co-producer Fred Gaisberg in 1904 as 'a star turn … with crowds at the quayside, bands playing the troops up the gangplank, bugles sounding "All ashore," farewell cries of "Don't forget to write," troops singing "Home, Sweet Home," which gradually receded in the distance, and the far-away mournful hoot of the steamer whistle. … It brought tears to the eyes of thousands.'[10] Typical of the dumb Orwellian mentality throughout is Sergi Jordà's line 'an ambitious goal for any new instrument is the potential to create a new kind of music', a statement that would be illogical and ungrammatical if it were not already completely and utterly meaningless.

[8] Werner Meyer-Eppler, 'Statistical and Psychological Problems of Sound' tr. A. Goehr. In *Die Reihe I* ed. Herbert Eimert and Karlheinz Stockhausen (Bryn Mawr: Theodore Presser, 1958), pp. 55–61.
[9] Robin Maconie, 'Periphonic Synthesis: A New Challenge', *Proc. Inst. Acoustics* (1985) pp. 7–11.
[10] F.W. Gaisberg, *Music on Record* (London: Robert Hale, 1946), p. 45.

Readers seeking a general overview of electronic music in the mid- to late 20th century may make a start with Paul Griffiths' *Guide to Electronic Music* (London: Thames and Hudson, 1979), Peter Manning's *Electronic and Computer Music* (revised, New York: Oxford University Press, 2004), and Brian Eno's updated edition of Michael Nyman's *Experimental Music* (London: Studio Vista, 1974; second edition, Cambridge University Press, 1999). Among equivalent American starter texts are titles by Elliott Schwartz (*Electronic Music: A Listener's Guide*. London: Secker & Warburg, 1973), David Ernst (*The Evolution of Electronic Music*. New York: Schirmer, 1977), Barry Schrader (*Introduction to Electro-Acoustic Music*. Englewood Cliffs NJ: Prentice-Hall, 1982), Thomas B. Holmes (*Electronic and Experimental Music*. New York: Scribner's, 1985), and John R. Pierce's magisterial *Science of Musical Sound* from the *Scientific American* Library (New York: W.H. Freeman, 1983). For the more technically minded and computer literate, the going is a little more tough, but the material is out there. Helmholtz's *Sensations of Tone* is still in print as a Dover paperback, along with Fritz Winckel's *Music, Sound, and Sensation, a Modern Exposition* of 1967, covering the European *Die Reihe* era, and Harry Olson's classic *Music, Physics, and Engineering* (1952, revised 1967), perhaps the clearest exposition available of the crucial first decade of US electronic and computer music theory in the 1950s.

Olson is old-fashioned but informative about the equipment resources and composing philosophies of pioneer electronic music composers Milton Babbitt (*Philomel*; *Ensembles for Synthesiser*) and Lejaren A. Hiller (co-composer with John Cage of *HPSCHD*). The tape improvisations of Otto Luening and Vladimir Ussachevsky establish a recognizable aesthetic for Louis and Bebe Barron's bold and inventive music for the movie *Forbidden Planet*. The mysterious impact of vocoder-modulated sounds and noises, popularized in children's radio items and including such masterly singles as *Jack Benny plays 'The Bee'* on Capitol in the 1950s, would eventually inspire Xavier Rodet to create his *Chant* software at IRCAM that made Jonathan Harvey's *Mortuos Plango* possible in 1985, and *Speakings* conceivable in 2008. The practical joke implied by Berio's *Différences* in 1958, in which the sounds of live performers are gradually invaded and electronically distorted via unseen stereo speakers, gains added piquancy in the context of contemporary public demonstrations in New York in which passers-by were invited to spot the difference between anechoic tapes reproduced by a stereo pair of Edgar Villchur's groundbreaking Acoustic Research AR-2 air suspension loudspeakers, and the actual sounds of the Fine Arts Quartet and other famous ensembles playing live. There is a constant interplay in the history of audio between what composers of classic electronic music are doing, and what is going on in the industry.

After the successful launch of IRCAM, inseparably linked to the 1984 première of Boulez's *Répons*, the first real breakthrough of the digital synthesis age, a number of titles appeared from MIT Press under the editorship of Curtis Roads, bringing together collections of technical essays by contributors representing joint US and European research initiatives that made IRCAM possible.[11] To a majority of readers this material will remain hard to figure out, and even appear out of date, but it cannot be ignored. The most striking feature of these contributions as a whole is their retrospective nature. They read as testimonials of faith, are carefully written, and scrupulously edited, conveying an unmistakeable emotion of the end of an era, and the final reluctant abandonment of a particular line of inquiry and associated philosophy. It is a little touching to revisit James Moorer, co-developer of IRCAM's 4C, on the tribulations of a reverberation program, only to realize that one of the problems arising from an oversimplified approach to artificial reverberation is the generation of unwanted metallic eigentones.[12] Elsewhere a slight two-page contribution on the relatively simple technical transformations of Jonathan Harvey's *Mortuos Plango* turns out to have been ghosted by Stanley Haynes.[13] Among the more telling vignettes are conversations in which veterans of the early days – Risset, Marvin Minsky, Rodet – reflect on what they hoped to achieve and in some cases are still hoping may be achieved. The sense of reaching an end is vividly evoked in Roads' own essay 'Grammars as Representations for Music', an overview of various contributory theories of musical generative grammar triggered by a quotation from Noam Chomsky and opening out a previously undisclosed can of worms implicating early computer music initiatives in the same network of cognitive and artificial intelligence dogmas of the cold war era that in theorizing 12-tone, serial, and aleatoric music as problematic have managed to inflict considerable harm on the teaching and appreciation

[11] Curtis Roads, *The Music Machine: Selected readings from* Computer Music Journal (Cambridge, Mass: MIT Press, 1989).

[12] James A. Moorer, 'About This Reverberation Business'. In Curtis Roads and John Strawn ed., *Foundations of Computer Music* (Cambridge, Mass: The MIT Press, 1985), pp. 605–39.

[13] Jonathan Harvey, '*Mortuos Plango, Vivos Voco*: A Realization at IRCAM'. In Curtis Roads, *The Music Machine: Selected readings*, pp. 91–93.

of modern classical music in the past 60 years, while at the same time ignoring the practical foundations of timbre composition and the projection of sounds in space.[14]

For that reason the most revealing insights to be found in the *Cambridge Companion to Electronic Music* are to be winnowed from the casual remarks of survivors of earlier times, gathered together in two groups under the slightly patronizing rubric of 'Artists' statements'. Among them, an email from Max Mathews in which – at last – the old veteran finally disavows Fourier and his legacy, but adds the bitter rider

> For musical purposes, in the class ANY SOUND, almost all timbres are uninteresting, and many timbres feeble or ugly. … It is VERY HARD to create new timbres we hear as interesting, powerful and beautiful. … New music is now limited by the limits of our understanding of the perception of music by the human ear and brain.[15]

All that in just 60 years. And from Stockhausen, a brief note appealing to new generations to work hard in developing timbres, dynamics, and space movements in electronic music. 'These three parameters are still in their childhood'. That says it all. And adding, this time more in hope than anger,

> *Electronic Art Music* will develop very much, after the consequences of the few [*sic*] compositions of the last fifty-three years are seriously studied and have become common knowledge.[16]

Robin Maconie

Cornelius Cardew (1936–1981): a life unfinished by John Tilbury. Copula, £45.00 (hardback), £30.00 (paperback).

I can't recall a book for which I've waited with greater anticipation – or for longer – than John Tilbury's biography of Cornelius Cardew. The author has had some advantages over the 25 years since he began work, quite soon after Cardew's death in 1981. One is that, having suffered the loss of its original publisher, the volume was taken on by Copula, Eddie Prevost's own company. Prevost has allowed Tilbury over 1,000 pages, even before we reach the usual referencing, etc: something that no conventional commercial publisher would have ever permitted.

That kind of luxury is also a little problematic, since it brings with it the implication that an author has somehow had room for 'everything that is the case'. This expectation is, of course, ultimately a false one: what would 'everything' be? But it will nevertheless hang particularly over any reader who has been in any way involved with Cardew, every time he or she spots something missing (a little list is available on request).

Tilbury has had access to an impressive body of source materials, too, including Cardew's journals and correspondence. These turn out to be extensive; and even if they don't cover all periods of his most active quarter-century or so, they prove revealing, both on the composer's thinking and reading (which were unusually probing as well as wide-ranging), and on his music itself. Tilbury quotes liberally from the journals and much other unpublished material, sometimes to fascinating effect. It's clearer from this book than ever before that Cardew was brilliant, endlessly fascinating to those around him. He was also even more than the usual mass of contradictions that most of us are. Growing up a child of bohemian parents, he went to a reputable cathedral choir and public school (Canterbury); composing, in his last years, songs for Communist rallies, he had until then led a life in essence so resolutely middle-class, despite constant impoverishment, that, rather remarkably, popular music of almost any kind had played no part in it. Tilbury also catalogues a perhaps surprising amount of the composer's turbulent domestic and sex life.

Well before his political views developed in the early 1970s – turning him, some would say, into everything *but* a good composer – Cardew had already seen well beyond the dots he was putting on the pages of his scores. His critique of musical notation (not least in his thought-provoking article 'Notation – Interpretation, etc.', written for *Tempo* in 1961) emerged around 1960 out of his increasing disillusionment with the European avant-garde project embraced by such luminaries as Karlheinz Stockhausen, whose assistant Cardew was at this time. This in itself all makes a rather compelling story since, in Cardew's (and Tilbury's) hands, it goes far beyond the perhaps arcane, if important, disputes about the legitimacy both of the European avant-garde position and that of John Cage, another influence to be assimilated and then critiqued.

Through his experience of writing the 193-page graphic score, *Treatise*, between 1963 and 1967, Cardew came to doubt, at least for a while, the value of any kind of notation at all. Tilbury's accounts both of the composition and various realizations of *Treatise* itself, and of the move

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[14] Curtis Roads, 'Grammars as Representations for Music', *Foundations of Computer Music*, pp. 403–66.
[15] Max Mathews, 'Artists' Statements I: The past and future of computer music', pp. 85–6.
[16] Karlheinz Stockhausen, in 'Artists' statements II', p. 198.

into free improvisation with the group AMM that proved to be the logical solution to Cardew's musical problems at this time, are among the best parts of this book. The chapter on *Treatise*, for instance, manages to be more illuminating than anything else I have read before about both the connexions the work has with Ludwig Wittgenstein (a Cardew obsession) and the demands that this score makes upon its performers. It's from here that Tilbury's prose style becomes intermittently more journalistic; some will object, but for me it is mostly done in a quite appropriate, sometimes revealing, manner.

What I find a little hard to stomach is the occasionally rather 'irksome tone of *certainty*, of *irrefutability*' (to quote the author's own present view of Cardew's book, *Stockhausen Serves Imperialism*) which Tilbury adopts on some subjects here: when attacking what he sees as the backsliding of the European avant-gardists, for instance, who are taken to task for such crimes as the 'brutalization' of the performer. Tilbury can ride such hobbyhorses into the ground. Yet not only *Treatise* and AMM but also *The Great Learning* (an at times brilliantly perceptive reading) and the Scratch Orchestra (created out of a Morley College class and with many more members than just the often-quoted Michael Parsons and Howard Skempton, however important these two were) receive more compelling treatment from Tilbury than his attempts at dissecting some of Cardew's early scores, on which there is surely a lot more to say.

Another complication to the biographical narrative is, inevitably, Cardew's 'big switch' (as he once described it to me in interview) to what eventually became a radical Marxist-Leninist political stance, and the totally different, essentially tonal, kind of composition that he felt must go with this. Tilbury carefully examines and discusses everything involved here, from the break-up of the Scratch Orchestra and the effects on AMM, through the Berlin, Irish and Canadian political connexions, the arrests and imprisonment; all a valiant attempt on the author's part to make sense of the sad complexities of Cardew's gradual immersion into work for the Communist parties of his choice. Tilbury has previously dealt with the 'big switch' by arguing that the concerns that Cardew established for himself in the 1960s can still be seen even through the perhaps distorting lens of the composer's particular political predilections of the 1970s. He doesn't seem to follow that argument quite so firmly in this book, which commendably avoids any simplistic conclusions.

The second half of this volume must have cost its author a lot of agonies: for one thing, it used to be rumoured that it was Tilbury himself who was particularly responsible for Cardew's 'big switch', though that role turns out to have been played, in Tilbury's own account, by Keith Rowe. Tilbury was, nevertheless, a leading participant in this political project in its early stages, when much of Cardew's energies were devoted to repudiating all previous 'avantgardes'. The nadir of this phase came with Cardew's 1974 book, *Stockhausen Serves Imperialism* (to which Tilbury himself also contributed).

It is always clear from the present volume where Tilbury's own political sympathies lie: well to the left. However, he was, and remains, unable to embrace Cardew's radical activism and now comes fairly clean about his despair at Cardew's eventual stance. I would myself have been a lot more critical of Cardew's sometimes derisory political compositions, but Tilbury does draw attention to Cardew's unfortunate word-setting abilities here: still heresy in the political camp, it would appear. Tilbury's is, of course, a privileged position, not least as one of Cardew's most regular performers. But he never permits any of his own roles to intrude unnecessarily on his narrative.

What of Cardew's death on 12/13 December 1981, killed in a hit-and-run accident that has often been claimed to have been a politically-motivated murder? The details of this final part of the story are told unflinchingly, the possibility that it was not just an awful accident carefully examined. I well remember those pre-Christmas days of 1981 and have always thought that the unusually snowy conditions that prevailed suggested a simple accident: Cardew was presumably, like so many, walking in the road to avoid the probably untreated pavements. Tilbury's account, while not conclusive, does after all make me wonder.

Cardew scholarship will benefit enormously from Tilbury's tome, though its availability may prove as constipating for a while to other endeavours as the years of waiting for it have already been; besides, musicologists, as a breed (and music critics, too), get a tongue-lashing from Tilbury himself. Who, for one thing, has the source materials to tell any of these stories differently and with conviction? Apart, perhaps, from the subject of the Scratch Orchestra, for which there are doubtless as many histories as that turbulent group had members (and possibly even more). And what will now happen to Cardew's journals and correspondence?

Finally, how Cardew will be viewed in the future, as a musician, as a composer, as a political activist, remains more difficult to anticipate. His death at the age of 45 has already thickened the plot of his reputation over the last almost three decades, a reputation that has often seemed to

hang by the thread of those endless anniversary concerts and other events: the 25th anniversary of the founding of the Scratch Orchestra, the 25th anniversary of the composer's death, also what would have been his 70th birthday (I plead guilty to organizing a conference for that one), and so on.

Both his pre-political and his political music continue to appear overshadowed by their creator's seismic, to many ultimately negative, move into politics in the early 1970s; and this overshadowing is, more than anyone else's, their composer's own doing (or undoing). My most recent listening encounter with Cardew's music – the recital of mainly early piano music that Tilbury himself gave at the 2008 Huddersfield Festival as part of the celebrations of this book's launch – suggested an oddly restricted talent, scarcely capable of surviving far into the 21st century as an important creative figure. I'd like to be proved wrong.

Keith Potter

Music as Discourse: Semiotic Adventures in Romantic Music by Kofi Agawu. Oxford Studies in Music Theory, OUP, £25.99 / $45.00.

Kofi Agawu, Professor of Music at Princeton and an adjunct professor at the University of Ghana, Legon, writes with equal authority on ethnomusicology and analytical musicology, particularly in the latter case in the field of musical semiotics (see also his book, *Playing with Signs*). His most recent book, *Music as Discourse: Semiotic Adventures in Romantic Music* confirms his status as one of the foremost semiotic analysts of our time. Its title echoes and twists that of Nattiez's book, *Music and Discourse*. Yet the scope of the book is far broader than these statements might imply.

The strength of this book, paradoxically perhaps, lies in the fact that Agawu asks more questions than he answers (a characteristic of his teaching style, also). He seeks to give pointers to possible musico-analytic futures that go beyond Schenkerism and neo-Riemannian theory; more, he aims to make the reader both think and (importantly) listen, making it clear that he expects the in-depth analyses to be followed with score in hand. With this in mind, the book is divided neatly into two: firstly, 'Theory', in which Agawu sets out his stall, and secondly, 'Analyses', in which substantial examples are taken from Liszt, Brahms, Mahler, Beethoven and Stravinsky. The actual list of composers referred to is actually much longer when one takes into consideration the examples of the book's first part.

Agawu states that his aim is 'to provide performers, listeners, and analysts with a pretext for playing in and with (the elements of) musical compositions in order to deepen their appreciation and understanding'. Indeed, the word 'play' is significant here – rarely can a treatise that ponders on matters so weighty have had such a light, intensely readable, touch. The reader is encouraged, even, to recompose in an attempt to 'be' the composer, at least temporarily – maybe, even, to capture the joy of creation itself. A striking example of this is Agawu's Brahmsian reharmonization of 'God Save the King'. This even threatens to be fun.

The first part, some 192 pages, considers a number of questions at the heart of musico-analytical inquiry. Agawu begins by presenting some ten propositions about music and language. 'The fact that music is not a system of communication should not discourage us from exploring the messages that music sometimes (intermittently) communicates'. Then, Agawu explores, in his 'Preliminary Analytic Adventures', the problem of examining purely musical attributes in order to address questions of musical meaning. (Schubert D958, Adagio Mozart K576 (i) are the examples here).

One of the most appealing ideas represented here is an examination of 'topics' and how one can use them to restructure one's way of hearing in the hope of describing musical content effectively. Here, Agawu draws on Ratner (*Classic Music: Expression, Form, and Style*) to introduce what Ratner calls 'subjects for musical discourse'. Agawu lists 61 topics, from Alberti bass through French Overture and 'Lebewohl' (horn figure) to *Sturm und Drang* and waltz. He then compares lists by other interested parties (Janice Dickensheets and Márta Grabócz) before suggesting 18 topics pertinent to Mahler (a composer whose Ninth Symphony first movement forms the basis of one of the Part II extended analyses). Agawu's identification of three basic 'modes of enunciation' as Speech Mode, Song Mode and Dance Mode further stocks the analyst's armoury.

After an examination of 'Bridges to Free Composition' with an examination of previous ideas of Sechter, Czerny, Ratz and Tovey, Agawu introduces paradigmatic analysis, a predominantly semiotic tool (see Ruwet, Lidov, Monelle etc) used to arrange the signifying units into groups, columns or paradigms according to chosen criteria. As he puts it, 'paradigmatic analysis does not tell you *what* a work means; rather, it makes possible individual tellings of *how* it means'(p. 271).

By using his technologies as launching pads for ruminative thought, Agawu is able to take the first

movement of Beethoven's String Quartet op. 18/3 and examine the use of tonal models – his example on page 187 aligns previously identified units with tonal models (simply stated, I–V–I in four variants, I–V and V–I). Schenkerian notation is used to explain origins of the models in the music's surface. Their composing out is explicated by a list of topics ranging from bourrée to '*alla zoppa*' and '*Sturm und Drang*'. The whole is a virtuosic working-out and demonstration of techniques, yet it results in a satisfying and musically enriching analysis in its own right. The same can be said of all of the analyses Agawu presents: although there to substantiate points, the analyses in the central part of the book all offer substantial insight above and beyond the call of duty.

Agawu's analytical methodology here comprises the sequence of outer form, segmentation of piece into units and explication of their substance, a summary of this into a paradigmatic chart of units with optional additional headings of 'form' and 'meaning'. The actual choice of pieces is fascinating and the works are not necessarily core repertoire: Liszt's *Orpheus*, for example, only rarely makes it to the concert platform these days. Agawu is laudably unafraid to use value-based terminology when referring to passages – 'beautiful' is a word that was completely absent from any respectable analyst's vocabulary a couple of decades back.

Inevitably, in a book of questions, an epilogue is going to be no neat tidying-up exercise. Indeed, Agawu reminds us of the basic questions he asks, and suggests further ones while recapitulating the structure of the book. He ends with a plea

> to remain curious about the inner workings of our art … If, as Anthony Pople suggests, 'meaning is a journey rather than a destination', then edification will come from doing, from undertaking the journey (p. 320).
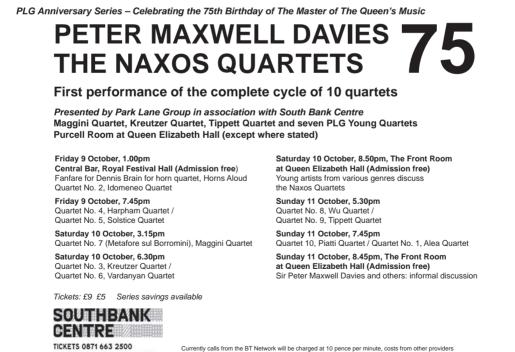
Footnotes are detailed, and the bibliography alone makes the price of this book worthwhile, while simultaneously acting as a reminder of Agawu's huge frame of reference.

Colin Clarke

The Cambridge Companion to Shostakovich ed. Pauline Fairclough and David Fanning. Cambridge University Press, £48.00 (hardback), £19.99 (paperback).

Composing the Modern Subject: Four String Quartets by Dmitri Shostakovich by Sarah Reichardt. Ashgate, £45.00.

In the final pages of her book, *Composing the Modern Subject*, Sarah Reichardt writes that 'music

will always resist our attempts to fix meaning' (p. 119). Mobility of meaning is particularly characteristic of Shostakovich's output, which offers, according to Taruskin, 'a tabula rasa on which all and sundry could inscribe their various messages with a minimum of resistance' (Ibid.). For many decades, such inscriptions have of course been dominated by those that read the music in the light of its relationship with the Soviet state: Eric Levi, in his contribution to *The Cambridge Companion to Shostakovich*, describes the composer as a 'political football' (p. 287) as commentators motivated by ideological concerns sought to praise or condemn the influence that politics had on the music. Others have taken the opposite approach, which, broadly speaking, looks at the ways in which Shostakovich encodes his own political resistance within the music. In either case, the music is at risk of becoming a cipher.

It is against this background that the editors of *The Cambridge Companion* seek to position their volume: the publisher's blurb on the back claims that the book

> offers a new starting point and a guide for readers who seek a fuller understanding of Shostakovich's place in the history of music. Bringing together an international team of scholars, the book brings up-to-date research to bear on the full range of Shostakovich's musical output.

The strategies involved in developing 'a fuller understanding' and covering 'the full range' of the composer's compositions are similar: contributions discuss most (though by no means not all) of the composer's output, arranged by genre and including hitherto unfashionable areas such as Shostakovich's political music and his scores for film, and many authors contextualise this work with reference to external events.

This approach certainly brings breadth to the study; it inevitably leads to an unevenness of depth, however. This is in part a consequence of the availability of resources to date. The second section of the book, for example, discusses Shostakovich's music for stage and screen. Here, the relative unfamiliarity of much of the repertoire has led contributors to discuss scenarios and plots, Shostakovich's methods of artistic collaboration, and the political background against which this work took place. The importance of this area of Shostakovich's output resonates throughout the volume – Gerard McBurney, for instance, discusses how the theatre provided a 'laboratory' in which Shostakovich could experiment; hints of this can be found in Shostakovich's early symphonies (Roseberry, 15). Crucial too, is the way in which the composer developed a 'cool-headed grasp of the way the same music could bear different meanings in different contexts' (McBurney, 147). This observation underlines the semantic fluidity to be found in the composer's work, and guards against the tendency noted by Francis Maes 'to approach the songs mainly with a desire for unequivocal answers to vexing questions of meaning in Shostakovich's music' (231). Yet it is telling, too, that the chapters on dramatic music contain no musical examples, and in some cases only passing reference to the music at all.

By way of contrast, the editors single out (p. 2) those contributions that are more analytical in focus, which are all grouped together in the first section of the book, 'Instrumental works'. Three of these five explore a single genre: Eric Roseberry tackles the symphonies, Judith Kuhn the string quartets and Malcolm MacDonald the string concertos and sonatas. David Fanning adopts a more historical approach in his exploration of the early music leading up to the First Symphony, whereas David Haas concentrates on a single work (the Second Piano Sonata). The contributions don't quite succeed in covering 'the full range' of Shostakovich's instrumental outputs – the piano music is only patchily covered, for example, though certain works are mentioned again in later chapters – and the shifting of focus from large groups of works (the symphonies and string quartets) to single works (the Second Sonata) leads to an unevenness in the amount of detail that can be provided.

Rounding off the volume are two chapters on the songs (Francis Maes) and political works (Pauline Fairclough) – the latter venturing into previously uncharted territory in Western Shostakovich scholarship – followed by a range of essays that provide alternative viewpoints on the composer. The first of these, by Erik Levi, was discussed above. David Haas provides an interesting survey not only of Shostakovich's harmonic language, but also the ways in which Soviet and Western theorists alike have tried to explain it. David Fanning studies Shostakovich's recorded performances of his work, and the final chapter offers an interpretation of 'Jewish existential irony' in the music (Esti Sheinberg).

Taken as a whole, *The Cambridge Companion to Shostakovich* goes a considerable way towards achieving the ambitious task it set itself. The comprehensive but not-quite-exhaustive coverage of the output throws new light on the composer's work, and particularly the way the 'lesser' activities inform the music on which Shostakovich's reputation is built. And yet for all of the broad sweep of submissions, it is the latter, and particularly the instrumental works, that remains at the core of this volume, where the music itself forms

the main focus of discussion (and this discussion is often analytical in nature).

It is to the instrumental music, and specifically the String Quartets Nos. 6–9, that Sarah Reichardt turns. Reichardt's programme is ambitious: her 'concern is with tacitly desexualized modern subjectivity (reflecting the blankness created by the alienation of modernity) and how the pathologies of this desexualized subject are reflected in Shostakovich's music' (p. 12). More specifically, Reichardt claims that 'reading the ambiguities written into the string quartets through the lens of the real reveals the arbitrary and contingent state of the musical subject's constructed universe' (15). Such an aim, and the theoretical arsenal that Reichardt assembles in order to achieve it, runs the risk of (once again) reducing Shostakovich to a cipher. To counter this, Reichardt remains in close contact with the music: all interpretations spring from a noteworthy musical detail and the consequences of this detail are mapped out in close readings.

To argue for an interpretation is one thing; for it to be plausible is another. It is the return of a cadential figure in the Sixth Quartet that motivates a series of reflections that take in, over the course of four densely packed pages, textual grafts (Derrida), the possibility of endings (Adorno), ruptures of reality (Lacan) and techniques for avoiding the consequences of recognising such ruptures (Žižek) and epistemic knowledge (Foucault) (pp. 20–23). The result of this is that the first three movements of the Sixth Quartet are seen as embodying a different knowledge base (Modern, Classical, Renaissance) as they try 'to avoid acknowledging the emptiness behind its reality by acting as if ruptures in its symbolic construction do not exist' (23). The final movement, on the other hand, offers a new episteme 'that acknowledge the ruptures of the real and attempts to integrate them into constructed reality' (37–8). Such claims are argued with reference to the score, with Hepokoski and Darcy's sonata deformation theory as an important point of reference (Judith Kuhn's chapter in *The Cambridge Companion* uses a similar strategy). There is something a little too neat about the argument – not least the ways in which the quartet conveniently reviews each episteme in turn – although it makes for an interesting conceit (and one that certainly forces this listener, at any rate, to listen again more carefully). Something of the same is true for the short chapter on the Ninth Quartet, which of all the chapters contains the least engagement with the music.

The argument becomes much more persuasive when Reichardt turns to the Seventh and Eighth Quartets. As with the Sixth, the identification of a problematic musical feature (respectively the repetition of the coda of the first movement in the third and the multiple recurrences of the D–S–C–H motif) motivates the interpretation. For the Seventh, the notion of Coda as a supplement and thus death (*pace* Derrida) is supported by reference to *Formenlehre* and, crucially, expressive topics within the music (such the funereal air of the second movement, coupled with intertextual links to *Lady Macbeth*). In the case of the Eighth Quartet, death once again hovers over the proceedings and, in conjunction with the resistance of the omnipresent motto to integration, provides a 'dualistic representation of a utopian struggle for freedom against the brutality and arbitrary authority that determines everyday existence' (97).

The sense that something is lacking is characteristic of modern subjectivity, and Reichardt argues that the power of music, and in particular Shostakovich's, lies in its ability to represent this lack, to give it voice. In this way, Shostakovich's music transcends the time in which it was written – it is more than just 'a witness for the citizenry of the Soviet State' – for it 'presents us with a means of preserving our sense of humanity within the midst of universal nonsense' (120). These are claims on the grandest scale, and at times the weight of the intellectual edifices constructed in order to substantiate them threaten to overwhelm the object of study. Nevertheless, the attempt made in *Composing the Modern Subject* to examine the ways in which Shostakovich's music continues to resonate with modern audiences bears careful reading. Even if one ultimately disagrees with its conclusions, the seriousness with which it takes the quartets is testimony to their enduring expressive power.

Edward Venn

Sounding Postmodernism: Sampling Australian Composers, Sound Artists and Music Critics by David Bennett. Australian Music Centre, £50.00.

Sounding Postmodernism is formed from two studies conducted by the Melbourne-based scholar, David Bennett. The first – *Sampling Australian Composers* – is a theory-focussed polemical investigation into the aesthetics of musical postmodernism, whilst the second – *Sound Artists and Music Critics* – presents 36 responses to a questionnaire undertaken between 2004 and 2008.

Bringing together these two inquiries is a difficult task, and one that is largely placed on the reader's shoulders, with only 'A Raider's Guide'

for orientation. This 'Polemical Preface' begins candidly: 'Let's be frank. Some readers of this book – perhaps most of you –will wish to turn straight to Part 2' (p. 8). For those who continue, a caution awaits in the second chapter:

> Perhaps I should begin with a caution: this is not a book about art music or sound art, still less one about jazz or popular music; rather it is an investigation into musical aesthetics, based on the uncontroversial assumption that how we listen to the arts of sound is influenced by our preconceptions about the history and cultured meanings of musical forms and styles, intervals, rhythms, timbres and so forth – and that such preconceptions are therefore worth investigating in their own right. (p. 11)

Bennett's cautiousness about a reader's level of commitment and interest is itself the reader's best compass, pointing directly to the nub of the problem: that practising sound artists (whatever their ilk) and those engaged in the theorizing of their art, are almost mutually exclusive categories; the responses to postmodernism from both groups also appeal to different readerships. It may not be a reader-friendly mode of presentation – why should it be otherwise? – but it is an honest, straightforward, pragmatic and effective manner of addressing postmodernism in music. This is a book that adds significantly to the existing discourse.

The two parts of this book are ultimately interconnected, with the first making use of the answers given in the second, whilst the questionnaire is most usefully read in the light of Bennett's opening chapters. His writing is lucid, and his adoption of the genre of the polemic is useful in assuaging immediate criticisms of each argument so that a complex, interrelated exploration of the topic can be sustained.

Each chapter of the first part addresses a different aspect of the postmodern argument. This is material that gives life to a postmodern perspective, as Bennett moves swiftly between art forms of differing eras to raise a range of understandings attached to postmodernism. As a resource for those approaching the subject for the first time, those teaching this theory and those who work outside the sonic arts, this book will be of especial value. By devoting as much space to the mis-readings of postmodern theory as to its theorizing, Bennett cunningly contextualizes modernist paradigms of interpretation.

There are passages that are too reliant on a US-forged perspective, such as the chapter 'Post-postmodernism, post 9/11', which places too much emphasis on localized practices to be incisive in a non-American context. Here, as elsewhere, I find Bennett's articulation of the music of modernism too narrow. Significant space is devoted to exploring modernist hegemony through critiquing the procedures (*qua* the formation of 'Musical modernism's grand narrative') of Schoenberg, Boulez, Stockhausen and Messiaen, as a 'stranglehold' (p. 65) of orthodoxy. Uncovering cracks in the rhetoric of high modernism is a task accomplished long ago (if it was necessary at all), in no small part through the late writings of the early exponents of the style. Bennett frequently quotes from those quick to raise a finger to 'musical modernism' without separation of commentary and music. Such a penchant for the dramatic statement in the place of musical description aids little in the understanding of modernism, postmodernsim or associated musics, privileging the 'cruel' (p. 26), the 'sadomasochistic' (p. 24) and the 'creepy' (p. 64) in place of the generous and the ambitious.

My criticism here is not one of Bennett's understanding of modernism (though it differs markedly from my own), but with the omniscience of perspective that he adopts. By arguing his points through the opinions of others ('preconceptions […] worth investigating in their own right') at the same time as making decisions about which others are quoted – decisions that are not explained in the text – Bennett supports a stance that conflates the text of music with its paratexts. To be clear, this is not a criticism of his approach *per se*, but of a non-music-specialist working with living composers, now. I would have valued a more overtly idiosyncratic style that revealed more explicitly Bennett's take on his sources.

A similar issue faces the reader throughout the second part of the book, wherein lie the responses to Bennett questionnaire. For the most part, those composers who responded do so with reluctance, indicating frequently their discomfort with being asked to engage with the specific questions asked. For example, Cat Hope writes that 'terms are a business for historians, not artists' and Anthony Pateras similarly responds that 'The ideas are dealt with through practice, and that's that' and, later: 'Yes, but it's not the kind of thing you can describe accurately in writing'. Andrew Ford remarks that 'To have any chance of saying something sensible, you need to discuss an individual artwork' (p. 239). To a significant degree this issue could be mitigated by adopting a methodology of discussion, engaging the composers in a more equitable, conversational manner to elicit responses that are more anecdotal.

Asking 36 practitioners the same 28 questions is, however, revealing. Some choose only to answer a handful of questions, whilst others give full and detailed answers even when the questions

move them out of their field. Some responses quote from postmodern theory in an academically secure manner, whilst others respond as one might to an e-mail. Eliciting responses about, for example, electronic music from score-based composers gives significant insight into their music that would otherwise be inaccessible.

Conversely, asking the same questions to all practitioners fails to engage some respondents deeply enough, and denies the significant benefit of a follow-up question. I cringed when Roger Dean, an internationally leading figure in interactive creativity, was asked: 'Do you make use of digital technology and/or Web in composition (other than notation software)?' More generally, too many of the answers given seem overly negative, which is as much, I suspect, indicative of the format of the questionnaire rather than the questions' contents.

These criticisms aside, the book remains a valuable location for those interested in the responses of (Australian) composers to postmodernism. Bennett's contribution is deeply polemical, for which he is to be applauded.

Michael Hooper