Chroma

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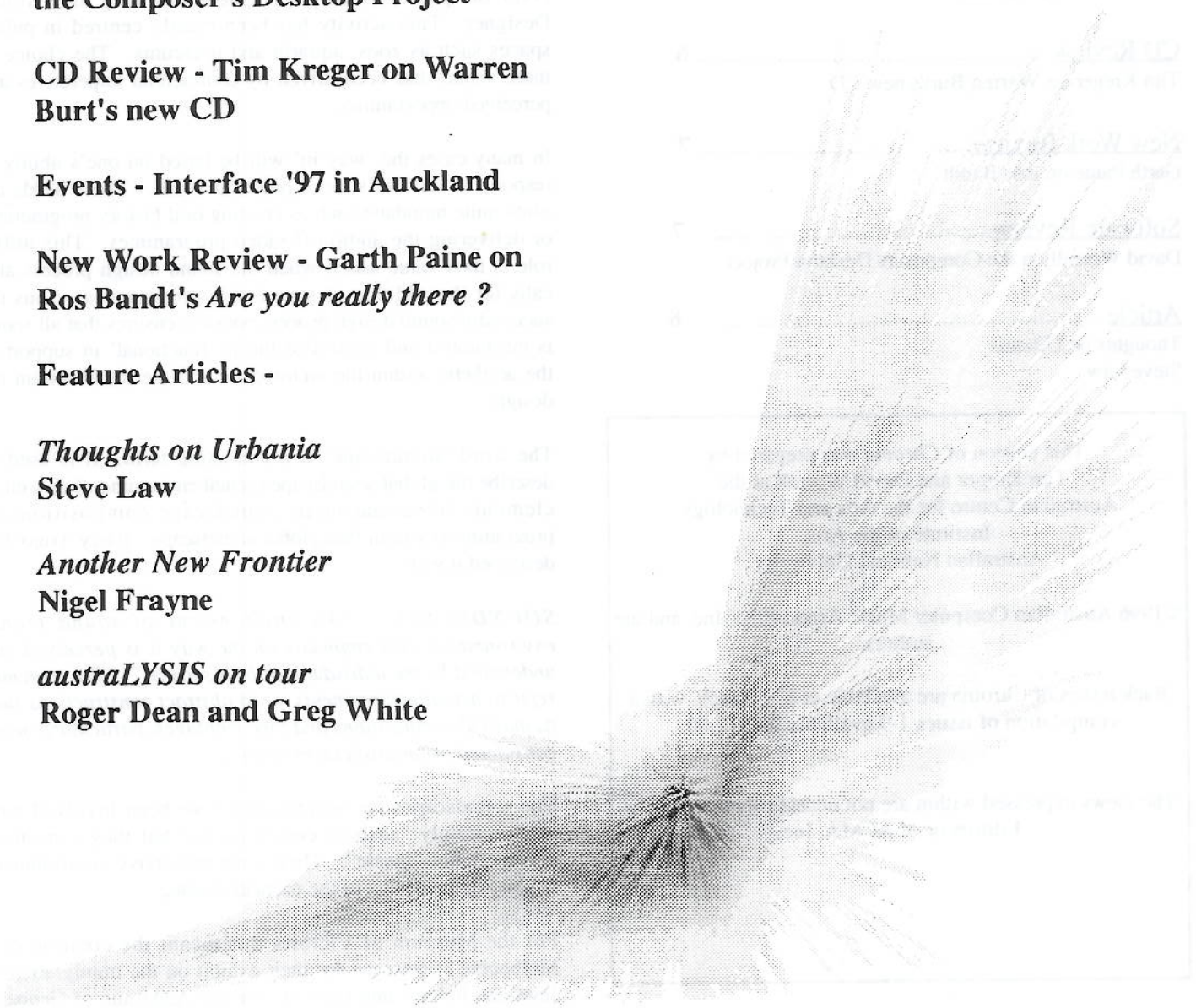

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This edition of *Chroma* was prepared by
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Australian National University.

Back issues of Chroma are available at $2.50 each, with a compilation of issues 1-9 available for $18.00.

Another New Frontier?
Nigel Frayne

Overview

New forums are emerging for the practice of electroacoustic soundscape composition creating opportunities for those within the EA community who are able to adapt. Sound designers are well placed to exploit these opportunities. A fundamental shift in approach will be required for music composers who wish to also be a part of this activity.

The digital sound tools provided essentially by and for the computer music community are also the tools being adopted by sound designers. Continued development of the technology is essential and needs to be supported.

Introduction

Over the past 5 years I have been working as a Sound Designer. This activity has been mostly centred in public spaces such as zoos, aquaria and museums. The choice of these venues has been driven by commercial imperatives and perceived opportunities.

In many cases the 'way in' will be based on one's ability to respond to a client's more practical needs. These needs are often quite mundane such as creating oral history programmes or delivering the audio-off-video programmes. This utility role is then value added when the sound design process also calls for the addition of soundscape programmes. Thus the successful sound design process not only ensures that all sound is meaningful and controlled but is 'functional' in support of the aesthetic within the architecture and the intent within the design.

The word 'soundscape' is a confusing term. It is used to describe the global soundscape (actual environment) as well as elements (electroacoustic soundscape compositions or programmes) within that global soundscape. Barry Truax has described it well.

SOUNDSCAPE: "An environment of sound (sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society." "The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an artificial environment." [1]

The soundscapes for projects that I've been involved with were certainly "abstract constructions" but they were most definitely not "music". They were immersive environments tailored to the design of the particular space.

For the Museum of Victoria this meant the creation of a Melbourne streetscape for their exhibit on the immigration of Jews and Italians into Carlton. For the Aquarium of Genoa in Italy it meant the aural representation of geographical locations visited by Colombus during his voyages to the new world. For San Diego zoo the soundscapes re-created the environment of the African Lowland gorilla.
In all of these examples the soundscapes were constructed

from layer upon layer of high quality field recordings - mostly of the natural environment.

New work

Then there is the so-called picnic ground at Taronga Zoo in Sydney. The visitor walks down through the zoo and experiences the soundscapes associated with the Australian, South-East-Asian and African habitats and arrives at an area which has no animals exhibited. The soundscape which speaks for this space is comprised of a collection of diverse sounds. While some of these will be familiar recordings of the real world others are quite synthesised. The fact is that some of the sounds have been heavily processed using what have become classic techniques of DSP. Suddenly we have granular synthesis in a zoo!

The zoo is in some sense a representation of the wonders of the natural world. The soundscapes in various exhibits are designed to support that. Now, at the picnic ground, visitors are presented with the spectacle of the relentless march of human civilisation - the Sydney skyline viewed from across the harbour. While awesome in its beauty this city skyline represents the very reason why so many of these animals and their habitats are now extinct - the very reason for the existence of the zoo!

The soundscape created for that area functions as a commentary on this irony. It is a dialogue between the natural world, represented by field recordings, and the synthesised world, represented by heavily processed sounds. Visitors wander about or sit in reflective mode - tuning in and out of reality as pleases them. Perhaps they will be provoked into a response or perhaps they'll pass through with the soundscape unnoticed.

Discussion

Consider. A piece of music performed in a concert hall or, less specifically, a performance venue is functioning in accord with the design intent of that space. The performance venue is a defined place where ideas or musical discourse can be totally free of conflict between venue and purpose. Music can be successfully transported to any such venue anywhere in the world.

My premise (recognising that there will always be exceptions to statements of generality) is that works presented 'in concert' are driven by outpourings of the human ego. Such intensely personal statements are often at odds with the chaotic environment of our urban habitat. Performance will not naturally transport outside of this controlled space.

If this is reasonable then we have exposed a fundamental difference between composition and design.

The product of a composer will be the musical composition - a highly personalised statement. It is realised 'in concert', functional in accord with that space. It will also function for the community which has paid for it, through sponsorship and commission, by wrapping the performance up in a social event.

The designer, or more specifically, the sound designer will create abstract constructions which give voice to a specific local environment. Such a soundscape cannot be transported. However, *any* location can be treated to some degree. The picnic ground at Taronga Zoo is one example in a world of opportunities.

The technology

A brief word on the delivery system. The soundscapes for all of the projects in which I have been involved have all been delivered from a unique, processor controlled audio system. This system featured the random selection of audio tracks off CD-ROM, VCA controlled audio mixers with preset amplitude envelopes and motion sensors providing data to control the system. The proprietary design of the system, while exotic in those days, has now been largely superseded by commonly available technologies.

If not final solutions in themselves, programes like Opcode's Max can be used to prototype new ideas for system design and control. Other products not commonly associated with commercial enterprise have also been put to work. For me these include *Audiosculpt* (from IRCAM), *Supercollider* (by James McCartney), *Sound Hack* (Tom Erbe) plus the usual run of sound editing software packages such as *ProTools*, *Deck*, *Sound Designer* and *SoundEdit*.

Many of these programes are still in development. The internet discussion lists abound with advice, example code and experiments. Much of this activity is the product of researchers and computer music boffins, beavering away in their universities on high-end computer workstations.

Bravo to them, I say. Long may they toil. The tools that they are creating, while perhaps intended for the computer music community, are also reaching the deskstop machines of sound designers providing us with extraordinary capabilities for the exploration of new sound worlds.

Conclusion

It is exhilarating for me to discover that commercial enterprise can provide opportunities for the exploration of sound design. As the shrinking dollar squeezes the life out of the funded arts we are challenged to survive.

The brave new world of EA 'art' is science fiction - it is charged to take us where no-one has ever been. Such 'places' might be closer than we think. Rather than the outer limits of the universe it might simply mean the street corner or the shopping mall or the picnic ground at the zoo!

[1] B. TRUAX, *Handbook for Acoustic Ecology*, A.R.C. Publications, Vancouver, 1978*p.126.*

austraLYSIS on tour : computer-interactive systems for the suitcase

Roger Dean and Greg White, austraLYSIS, Sydney

austraLYSIS, comprising Roger Dean (keyboards/computers), Hazel Smith (text-performance), Sandy Evans (saxophones/wind controller) and Greg White (computers/sound manipulation) undertook performances and recordings in the UK in late 1996. Our major appearances were at the Huddersfield Festival of Contemporary Music, Britain's biggest and leading festival of new music. There we performed Australian compositions : notably Steve Adam's interactive piece *Nexus* (written in MAX), which we had commissioned, premiered in Australia, and recorded for the ABC. We also presented Greg White's *The Silence of Eyes*, a piece for speaking computer typist, instruments and sound manipulation, an earlier austraLYSIS commission. Both these works received their first European performances, while Dean's *Sono Va*, a solo for Saxophone, wind controller and sounds triggered and manipulated through MAX, received its first performance. Text and sound works by Hazel Smith and Roger Dean, were also included, again using MAX as a vehicle for realisation of complex but controlled scores. Some of the literary jokes in their 'Detective' were a little lost on the musical audience, though they really scored with the audience at the American '*Assembling Alternatives*' new poetics conference at which Hazel also performed (and discussed) the piece.

austraLYSIS also appeared during the tour in its improvising guise, now called the austraLYSIS Electroband, and comprising Dean, Evans and White. We have developed networked computer-interactive techniques for improvisation, and compositions in MAX for such work. The trio produces an orchestral range of sound, from drums to industrial, natural to synthesised, and we usually superimpose continuous timbral variation, through long-term processing controls in the software and hardware. At Huddersfield we gave not only some improvised performances, but also a workshop on improvisatory techniques using computers. The repertoire includes computer-generated bass lines, which both walk and run (and everything in between), drum ostinatos, as well as romantic harmonic works and works focussing on textural/timbral generation and manipulation. This produced great interest and enthusiasm in both performance and workshop. Several sophisticated questions kept us on our toes, and some notable English musicians such as the 'soundsmith' Martin Archer (saxophones), who produces the adventurous Discus records label, played with the group at the workshop.

Roger Dean spoke at a Forum on Australian music with the director of the Festival, Richard Steinitz, composer Liza Lim, and director of Elision, Darrel Buckley. The Electroband also appeared at the "Other Musics" series in Sheffield, and recorded for the main BBC programme featuring improvised music, "*Impressions*". A very successful studio session included 6 of Dean's compositions for improvisers, and extended interviews with writer and publisher, Alyn Shipton. The Electroband will release its first CD on Tall Poppies later in 1997, following on several previous austraLYSIS jazz/ improvisation recordings, and also recordings of completely notated acoustic/electro-acoustic compositions, on that label and others.

ACMA members will be used to thinking about computer problems and practicalities, and on tour a key problem is of course weight and size of equipment. Equipment hire costs in London seem to be about double those in Sydney, so what to hire and what to bring was a real issue, as we did not have a huge touring grant. Some equipment was, of course, supplied by the venues themselves but despite many faxes and detailed specifications, we still had the odd glitch, some serious. For example, the high quality data projection system provided for one gig was an overhead-projector with LCD panel, a white sheet and a wire (although several suitable models were cited). At another our stereo sound system was two (different) guitar amps.

In Sydney we have always used desktop Macintoshes, but we chose to use Powerbooks on tour for obvious reasons. The first problem this caused became apparent to us months before the tour: the Powerbook 5300 would not properly 'cableise' (as the American techos put it) with our Midi Time Piece and OMS. This problem has still not been solved, as far as we know, though it is well known to Opcode, Mark of the Unicorn and Apple. Of course they each attribute it to another of the trio! Even up until a couple of weeks before the tour, we hoped this would be solved, but it was not. Happily, a reserve powerbook 170 acquired very cheaply in London served the purpose admirably. But this then required an extra install of MAX, as well as the safeguard spare install one had to carry, and hence we had to loan additional master discs etc. Such programs should come with at least 5 installs available, for legitimate uses such as these.

The second, quite surprising, problem was just how much rewriting of programs and sounds was necessary as we changed seemingly minor aspects of compositions to adapt to our new setup and the range of repertoire we were to perform. At least 24 person hours were needed in London solely for this purpose. The experience convinced us to develop a simple, portable, self-contained setup for all our gigs. One of the most important aspects of such touring is being organised well ahead of time (at least a year), and although austraLYSIS has undertaken more than 30 tours, we were still behind schedule in organising this one, and it was only sterling work by our administrator Sue Spence that kept it viable. Thanks to Sue, and to Richard Steinitz for providing an important opportunity for the exposure of Australian electroacoustic music.

Roger Dean
Greg White

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INTERFACE 97

computers - music - education
Incorporating ACMA Conference 1997

University of Auckland
School of Music
and the
Australian Computer Music Association

11 - 13 July 1997

Interface '97 will be the fifth annual conference of the Australian and New Zealand Computer Music community, held for the first time in New Zealand. It is a gathering of composers, performers, researchers and educators from Australia and New Zealand with representatives from around the world and will be an exciting sharing of issues and developments in electroacoustic music.

Location, Travel & Accommodation

Auckland, "City of Sails" is located on the twin harbours of Waitemata and Manukau and has a population of just over one million. Temperatures in July range from 8 - 15 degrees Celsius (46 - 59 deg. F). Auckland is 2 hours 40 minutes from Sydney and 3 hours from Melbourne by air and there are regular flights from other Australian, New Zealand and international centres. The university is approximately 20 minutes by car from the airport. (Taxi approx. NZ$25, bus to Downtown terminal NZ$9).

The University of Auckland campus is in the heart of the city and is the largest in New Zealand with some 25000 students. The School of Music, situated at 6 Symonds Street, was purpose-built in 1986 and offers a superb music theatre and up-to-date electronic music studios for the purpose of electroacoustic composition. There are currently 70 full-time music students studying composition.

There is a range of accommodation available, from budget backpackers (from NZ$14 per night), on-campus B&B (NZ$55), to nearby hotel (NZ$188). On-campus accommodation will be pre-booked by the conference organisers; reservations for other accommodation is the responsibility of individual delegates.

The School of Music is close to parks, gardens, shopping, the Waitemata harbour and is well served by public transport. Sightseeing tours and other activities will be suggested to delegates arriving before or wishing to remain after the conference. Further details will be available upon arrival and assistance given with reservations.

PROGRAMME
(details may change)

Friday 11 July

Afternoon:
* Registration
* Opening & welcome

Early evening:
* Concert 1
* Conference Dinner

Saturday 12 July

Morning:
* Paper Sessions 1&2

Afternoon:
* Paper Sessions 3&4

Evening:
* Concert 2

Sunday 13 July

Morning:
* Paper Sessions 5&6

Afternoon:
* Concert 3
* Open Discussion Forum

A detailed programme will be available after the selection of submissions for the conference has taken place. A registration form is attached to the back of this edition of Chroma.

CD REVIEW . . . .

Tim Kreger

warren burt: 39 dissonant etudes(1993)
(music for microtonal piano sounds, pt 2)
TP093 from Tall Poppies, PO Box 373, Glebe NSW 2037.

Warren, for those of you who aren't aware, is perhaps the most prolific electronic composer in Australia whose contribution to Australian electronic music goes beyond the mere production and presentation of his own work. Warren seems to be constantly travelling through North America and Europe, performing, talking and expanding his very large black book of international artists and composers. He provides the type of promotion for Australian work overseas that money or web pages can't provide. Much of my own music library has been developed from discussions with Warren so it's great to finally have a CD which is exclusively Warren.

39 dissonant etudes is a series of studies utilising 39 different equal tempered scales ranging from 5 to 43 notes per octave. The work is realised using a Roland Sound Canvas(SCC-1), Russ Kozerski's "*Drummer*" and Twelve-Tone System's "*Cakewalk*". Apart from the tuning aspect of the works there are interesting structural constraints involved, like having each measure of a work having a different metric structure.

One of the most intriguing things I find with this work is how quickly the ear adapts to each of the tunings despite the fact that each etude only lasts for ninety seconds. Each etude seems to fit within the framework of the larger work - no mean feat considering the individuality of each of the scale patterns. The time ordering of the etudes seems to be a progression of related tunings which could account for the ease of transition.

The timbral consequences of the tunings are also a feature. In some etudes harmonics wail and sing in the background and in others there are dense clusters of tones producing gong-like timbres from the piano samples. One wonders what the work would be like if played on a 39 individually tuned pianos and whether the sample based nature of the sounds contribute to the subtle (sometimes overt) timbral variation within the work.

Some further information in the liner notes about the methods used for deriving the scales and metres may have been helpful for the uninitiated although not entirely necessary as the work is strong enough to hold it's own without explanation.

This CD is a must for anyone interested in microtonality and it's possibilities. Each etude is treated in a manner sensitive to their respective tunings and the overall work gives one a sense of the "personalities" of the different divisions of the octave. It's also great to be able to stay in Warren's compositional head space for an hour or so, a rare opportunity given that most of Warren's recorded work is on artist compilations. I for one would like to more solo CD's from his formidable body of works.

ACMA Contact List

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oz-computer-music is an electronic mail list serving the Australian computer music community. To subscribe to oz-computer-music, send the following email message:

subscribe oz-computer-music

to:

listserv@latrobe.edu.au

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Ros Bandt
Article by Garth Paine

Dr Ros Bandt, known to most of Chroma's readers for her prolific and varied output has recently completed a new work commissioned by the ABC's Listening Room, completed at the ABC studios in Melbourne on a Sonic Solutions system with the assistance of Gary Havrillay.

Titled *Are you really there?* she describes it as "journeys between virtual communities and obsolete technology: an investigation of the actual, the useable, the used, the discarded, the hoped for and the future".

Pursuing her interest in creating architectural space within her sound world, Ros has created a piece that metamorphoses through a broad and eclectic sonic gene pool. Drawing on the concept of endangered sounds, Ros collected source sounds ranging from gun powder explosions recorded at Sovereign Hill, Ballarat, her mother's 1920 Underwood typewriter, to modem technicians and computer help desk technical advice. Many of these sounds have been treated beyond recognition before being woven into a complex tapestry, a tapestry navigated in a Beethovenesk fashion by a series of markers drawn from a range of historical contexts.

The 1920 Underwood typewriter becomes "the vehicle for communication in a letter with my deceased mother". This is juxtaposed with the sound of a superseded Imagewriter printer which is morphed into a sound reminiscent of a bowed cello whilst "voices are morphed from man to woman, from here to there, through fictitious worlds".

Are you really there? is a piece rich in journey. A sonic environment that is at once recognisable and distant, familiar and bizarre. There is an immediate temporality to the piece that is seductive and personal, the material being largely drawn from personal experience, from artefacts of relationships embodied in objects memorable for their voice. It is clearly evident to the listener that this piece is informed by emotional response to exploration: an exploration of the juxtaposition of informed historical wisdom and the frivolity of technology that has a currency marked in months, a currency becoming increasingly diminutive.

The construction of real and fictitious worlds acts as a vehicle for the examination of our perception of reality and it's basis within self-referencing models.

"Are we real? What is real? Was it real? Will we be real in the future? Is this really a piece? The perception of conciousness is being disoriented in the same way the sounds themselves become references only to those who are familiar to them".

Composer's Desktop Project (CDP) software for PC's & Unix (SGI) systems
David Worrall

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(with thanks to Archer Endrich of CDP for specifications).

Leaving aside the "I don't trust it unless I've written/seen the code" syndrome, (which I admit to suffering from mildly!) the problem with using someone else's software is that frequently it will do 90% of the job but it won't have some esoteric feature that I've just realised I'd like to try/MUST HAVE! and so I'm left with not being able to finish/start the composition the way I want until someone comes up with a new piece of software, or a modification to an existing one. My solution has been to write my own - this gives one maximum flexibility and quality control but is very time-consuming. During my time at the University of York in 1996 I had the opportunity to work with a suite of music composition software by the Composer's Desktop Project (CDP) on an SGI Indy workstation. I found it's openness and flexibility to be a major asset.

CDP is a cooperative project in which composers, programmers and educators have been working together since 1986 to create, develop and share a wide range of specialised sound-synthesis and transformation tools. The CDP System is designed by and for professional electro-acoustic composers, any musician interested in sample editing, and all those delving more deeply into the nature of sound. It makes state of the art sound processing software available to those working with sound both in and outside of educational and research institutions.

The CDP system can be thought of as a highly advanced sample-editor, for use with direct-to-disk recording facilities in which the size of a soundfile is limited only by the available disk storage space. All of the software in the CDP System operates in (at least) 16-bits with internal processing being in 32-bits and WAV and AIFF sound file formats are supported.

There are over 100 (command-line invoked) sound transformation tools gathered together as the signal processing package *'Groucho'* which perform transformations on a stream of samples as well as a another 60-odd phase vocoder and spectral analysis/manipulation tools.

In general, tools to perform these operations can vary enormously in quality and usability. The CDP software gives users extensive dynamic control of many parameters over time using time-value breakpoint files. The system includes its own port (under license) of *Csound*, a widely used public-domain software synthesis tool for additive, subtractive, fof, lpc, frequency modulation, waveshaping and the UCSD-CARL phase vocoderetc. *Csound* runs in real-time on the SGI Indy platform, enabling real-time synthesis and input=>processing=>output. There's a few

tricks to getting this to work properly but when you do, it's fantastic! Archer Endrich (the contact person for CDP) tells me that Richard Dobson is currently sorting on the latest public domain version which will, with the new hardware board designed by Analogue Devices, (for whom CDP will probably be developers) enable real-time operation of Csound on the PC platform.

Algorithmic composition software within CDP is limited to Cscore and Richard Orton's "*Tabula Vigilans*" - a powerful algorithmic MIDI composition language with C-like control files. Sound file handling together with MIDI is currently in development. Because of the openness of the CDP suite of tools, one can develop new and adapt one's own composition routines to work with the suite and I intend adopting my own "*Streamer*" software to do exactly that.

One of the real features of the CDP system is the fantastic documentation. In addition to the thorough reference manuals, there are 10 excellently written tutorials to help the user master various parts of the system.

Here are some technical specifications:

PC SYSTEMS

* 386, 486 and Pentium systems, running Windows 95 or MSDOS/Windows 3.1. Hardware floating point (ie. 387 or 486DX) is essential.

* 4Mbytes RAM minimum (8-16Mbytes or more is recommended)

* Fast, large hard disk (approximately 10Mbytes per minute of high quality recorded sound, plus space to work in). Any modern (sub-20ms seek time) hard disk should be useable, but the faster the better!

* Any PC sound card supported by Windows MPC drivers, providing sample recording and playback.

Unix SYSTEMS (Linux is not implemented on PC's) are currently limited to Silicon Graphics machines. Real-time synthesis processing is not really feasible with the older Indigo machines but the (4 channel) Indy flies.

Annual membership in CDP (for a very small fee) provides on-going support via telephone, Email and Newsletters.Further information about the system can be obtained from
Archer Endrich at

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Thoughts on Urbania
Steve Law

"Urbania" was a spin-off from an idea for a more extensive piece utilising field recordings made around inner Melbourne. Over the past few years I've spent a lot of time walking around the city (I generally choose to walk rather than take public transport), which is one of the best methods for me to think clearly and work through compositional ideas. Occasionally, while in a semi-meditative state, my mood and the sounds around me suggest the nature of a piece. So if I happened to be experiencing things in a bleak mood, the work would take on that character.

After one such walk, I decided to compose a piece that encapsulated these feelings and the sounds that I felt were linked to them, which suggested an uncaring modern metropolis and society falling into despair and decay, despite it's continuing technological advances. The complete piece, titled "The Dying Metropolis", is yet to be realised, however for the ABC competition I composed "Urbania" which allowed me to work on similar ideas. This piece uses source material recorded in Hong Kong and Melbourne, creating a disorienting combination of the sound environments of two modern yet very different cities.

"The Dying Metropolis" will be constructed entirely from concrete sounds (recorded around the city of Melbourne onto portable mini-disc), however "Urbania" incorporated digital synthetic sounds. These were mainly generated on a Kurzweil K2500 using additive synthesis, and the voice-like textures were created from formant waveforms on a Korg Wavestation A/D synthesizer module. The majority of the piece, however, was constructed from concrete sounds which were sampled and processed on the K2500. Further signal processing was performed on a Yamaha Pro-Mix 01 digital mixing console. The work was assembled using the K2500 sequencer.

I am still collecting sound material for "The Dying Metropolis", and hope to begin constructing the piece later this year. Meanwhile I'm working on several approaches to electronic music composition such as the combination of analog and digital sounds, (eg Csound output and sounds from an ARP 2600). Another approach I'm interested in is to layer combinations of noise, feedback, richly textured digital synthetic sounds and harsh concrete sounds to create a sonic intensity reminiscent of the Japanese and European noise artists. The ABC computer Music Award of a general purpose computer which I was fortunate enough to receive will greatly facilitate my endeavours.

I've had the opportunity to work in many different electronic music contexts and thepotential for electronic music to express the increasing complexity and diversity of contemporary life, to me, makes it the important music of our time, and of the future.