Chroma

Newsletter of the Australian Computer Music Association
PO Box 4136 Melbourne University VIC 3052

Number 2
AUGUST 89

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What Happened at the AGM?

On 19 June the first Annual General Meeting of Association was held. Unfortunately we didn't get around to music as such, but did manage to elect committee members, approve a constitution and do the necessary preliminary work in order to have the Association incorporated. Incorporation will enable the Association to enter into contracts (composer commissions?), hold assets, and limit the liability of members in the event of litigation, etc. The committee is:

Graeme Gerrard	President
Jim Sosnin	Vice-President
David Hirst	Secretary
Ann Peel	Treasurer

It was decided it would be a good idea to have a representative from each State on the committee, to provide a point of contact. So far, we have:

Peter Mumme	Victoria
Martin Wesley-Smith	NSW

Volunteers from the other States would be much appreciated. As the membership list on the last two pages shows, the Association has a lot of members in Victoria and NSW. We need to rectify this. One way is to give each issue of *Chroma* a State emphasis. This issue contains articles by Martin Wesley-Smith, and an interview with OHM, both from NSW. Warren Burt provides a whirlwind survey of what people are doing with technology in contemporary music internationally.

AMC Tape Collection

For some time now, the Australian Music Centre has been considering extending it's collection of tapes of electronic music. In recent discussions with Dick Letts, the Centre's director, it was thought that ACMA could collaborate with the AMC in promoting this idea. If you have recordings of your music that you would like to be held by the AMC, send them to:

Australian Music Centre
PO Box 49
Broadway NSW 2007

It may be a good idea to call them first on:

ph. (02) 212 1611

But Dick assures me they can handle most formats, reel to reel, PCM Beta, cassette and probably DAT in the near future. Works for performer(s) and tape can also be handled the same way.

Oztronics *Martin Wesley-Smith*

ABC-FM has invited me to write scripts for and present Oztronics, an eight programme series on Australian electroacoustic music. Produced by David Fisher, it will be an opportunity to collect together and broadcast a lot of music not previously widely heard ('electroacoustic music': electronic music, tape music, computer music, works for acoustic instrument(s) and tape, live electronics, etc.) Thus I am inviting composers to send good cassette copies of relevant pieces from which I can choose music to play during the series.

After I have listened to each tape it will be returned, (or sent to the Australian Music Centre, if you prefer). If there is a work, works, or extract on the cassette that suits and fits into the series, then I will ask the composer to send a high quality (reel-to-reel, PCM Beta or VHS, or DAT). For the right to broadcast a work, or extract from a work in the series, and to help reimburse the composer for the time and expense involved, the ABC will pay the composer at the rate of $10 per minute.

Please note [1] I don't pretend that $10 per minute is

an adequate fee - it is merely the highest I could negotiate; [2] if a work has been commercially released on record, cassette or CD, then no fee will be paid; and [3] if I choose not to play a particular piece, it should not be thought that I don't think the piece is very good - I simply won't be able to play everything.

Please send cassettes to me as soon as possible:

Martin Wesley-Smith
22 Ryan St
Lilyfield, NSW, 2040

and please include:
Name of work(s)
Name of composer
Address
Telephone number (Business and Home)
And whether you will permit just an extract of a work to be played on Oztronics.

Request for Articles

Dear Sir,

I am compiling a large anthology for a major US publisher on electronic music and MIDI. We are looking for articles (preferably with computer code) on all aspects of music synthesis, but especially as it applies to IBM, Macintosh, Amiga and Atari ST.

Kindly send me information on the Australian Computer Music Association.

Chris W. Miller
362 W. 52 St
New York, NY 10019
USA

Chroma 3

The next issue of Chroma will be out in early December. Unfortunately, because we got started in the middle of this year, with our first issue not until June, Chroma 3 will be the last for 89. Next year, we will be more organized and issues will come out at the beginning of March, June, September and December.

We're now looking for articles, items, news etc. for Chroma 3. The deadline for contributions is 30 November. But why wait till then to send 'em in? Send them now, to:

Chroma
Australian Computer Music Association
PO Box 4136
Melbourne University 3052

As Chroma is put together on a Macintosh with Word and Pagemaker, a Mac disk is preferred, but IBM disks are fine if you save your file as plain text. Chroma is edited by Graeme Gerrard, many thanks to Rainer Linz for advice.

Information Wanted for Survey

To whom it might concern,

I am a post-graduate student in the Music Department at La Trobe University, carrying out studies in the field of contemporary music technology. At present, I am working on a research paper which I intend to present early in the new year (1990).

As part of my research, I am interested in developing ***an integrated conceptual model of the learning processes involved in combining music performance, composition and artificial intelligence.***

To this end I have put together the following list of questions. If you have both the interest and time I would be most grateful for any feedback.

- How do you think interactive computer systems have influenced the processes of composition?
- How do you think interactive computer systems have influenced the processes of musical performance?
- What is your learning style? Do you prefer to deal with abstact or concrete (hands on) logic? Do you prefer to work with a strong sequential bias having clear goals in mind or do you find random processes more appealing?
- How long has it taken you to become comfortable with computer technology?
- How long has it taken you to become a proficient user of this technology and music technology in general?
- Do you have any other comments related to the above topic?

No direct reference will be made to individual responses, as the primary objective of this survey is to gain an overview of the diversity of educational approaches taken in dealing with the subject content.

If you wish to make a contribution to this research, I would need to have some kind of written response from you prior to the 31st of October, 1989. If you have any queries please ring me on (03) 419 3149.

Jon Mason

Using MIDIBASIC

- Martin Wesley-Smith

I'm a composer rather than a computer programmer, but being a composer I enjoy programming (it is no coincidence that many excellent composers are also excellent programmers, for many of the intellectual and creative processes are the same). I don't claim to be a good programmer (one of many reasons being, perhaps, that I started relatively late in life), and the only language I know well is BASIC. But I've found that MIDI programming in BASIC - while lacking some of the advantages of MIDI programming in other languages - has been of great benefit to me as a composer. And it's quick (to program), fun, and intriguing.

I've been using Microsoft BASIC 3.0 with Altech Systems' MIDIBASIC on a Mac Plus (MIDIBASIC also works with ZBASIC, which is much speedier, I'm told, than MS BASIC). Before MIDIBASIC came out I was able to write MIDI programs only by incorporating code (written by Carl Vine) that sets up the modem port as a MIDI port (it only worked, as it happens, on the old Fat Mac ROMs). A note-on message took the form of Example 1.

```
REM Send three bytes (decimal numbers)
REM 144 [the note-on channel 1 status byte];
REM 60 [note number for middle C]; and
REM 127 [velocity number to give maximum loudness]

PRINT #1, CHR$(144);CHR$(60);CHR$(127);
```

Example 1

I was able to find a way of doing most things that MIDIBASIC can do (filtering unwanted input data - such as decimal 254, that intensely-annoying active sense byte - was a clumsy affair, however, and slowed programs down). MIDIBASIC proved to be easier and a trifle more elegant.

Microsoft BASIC is a structured language that escapes many of the pitfalls of earlier BASICs as well as giving access to ROM routines and allowing full use of the Macintosh user interface. It's relatively slow, but it can get a job done with a minimum of fuss, and its compiler allows the creation of stand-alone applications that work faster and that can be sent on disk or via modem to other musicians. Proven routines can be stored on disk and copied and pasted between files (no line numbers!). I have a file with a starting template like that shown in Example 2.

I start most of my programs using this template (I'm assuming here that the MIDI in and MIDI out of a MIDI keyboard synthesizer are connected via a MIDI interface to the modem port of the Macintosh). Note that MIDIBASIC deals with decimal numbers, not hex. A simple program to listen to and display note and velocity numbers coming in from the MIDI keyboard would have the lines shown as Example 3 inserted after the label "music", in Example 2.

If you wanted the program to respond to MIDI keyboard input by playing a note between a minor second and a major seventh above the note played then insert the following lines before the last three lines in Example 3.

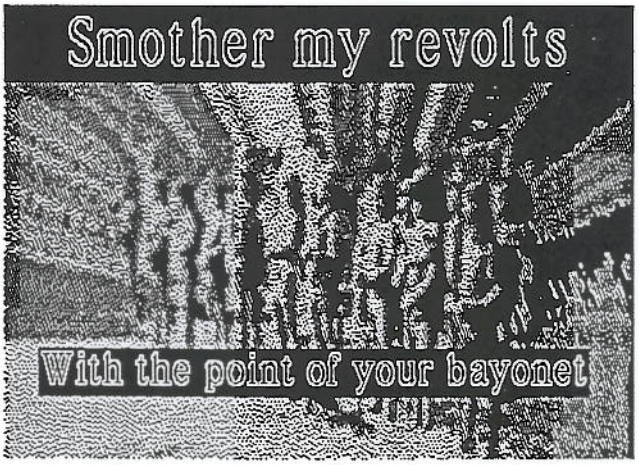
```
note%(1) = note%(1) + INT(RND(1)*11+1)
REM adds a value between 1 & 11
REM to the existing note number
```

and add the following lines after those three lines:

```
on1 note%(1), note%(2)
REM passes the note and velocity numbers to the
REM sub-routine on1
```

All MIDI commands can be recognised and sent. Thus programs can, for example, monitor a MIDI keyboard and accompany it with sequences determined by rules and/or random processes. System exclusive commands can, for example, increase the speed of the LFO of a Yamaha TX81Z (or any other MIDI) synthesizer. (see Example 4)

This comes from a live MIDI audio-visual piece I did



One of the Graphics from *Silêncio*

(with astronomical photographer David Malin) called *Star Trails*. Hitting D [38] of a mute DX7 passes the action to the sub-routine LFOspeedup,

```
[number% = number% - 37 : ON number%
GOSUB LFOspeedup, LFOspeedown]
```

which causes the value of the LFO speed to increase by 2. Hitting D# [39] sends it to LFOspeedown, which causes it to decrease by 2. Other cues change pitch modulation depth, operator level, and so on.

In *Smudge*, a stand-alone application, elegant visual patterns are created on the Mac screen as a result of what is played on a MIDI keyboard (this has been performed as an improvisation piece by the group Pipeline).

In *Silêncio*, one of three audio-visual pieces I've done about the Indonesian invasion of East Timor, and in a version of *Beta-Globin DNA*, I used MIDIBASIC to send commands to a Fairlight Computer Video Instrument in response to notes played by members of the percussion group Synergy on a Kat keyboard controller:

Silêncio also employed a knock-'em-down fun-fair

```
LIBRARY "MIDIBASIC"                    REM opens library of MIDIBASIC statements
        MIDIopen 800,800               REM sets size of input and output buffers
        MIDIport 3                     REM selects modem port for MIDI interface
        speed%=1
        MIDIport speed%                REM selects 1MHz MIDI interface

REM Set up filters to remove unwanted MIDI data from input.
REM The first number is the filter number. The second and third numbers
REM specify the range of MIDI numbers, in decimal, to be removed
REM (lowest, highest). The fourth number indicates the number of bytes
REM to be removed immediately after the specified byte.
REM Thus MIDIfilter 5,192,192,1 means that filter 5 will remove all decimal
REM numbers between 192 and 192 (ie: 192, which is the program change
REM status byte) plus the next byte that comes along (the data byte):
        MIDIfilter 1,254,254,0:        REM removes "active sense"
        MIDIfilter 2,144,144,0:        REM removes ch 1 note on status byte
        MIDIfilter 3,208,208,1:        REM removes channel pressure (aftertouch)
        MIDIfilter 4,224,224,2:        REM removes pitch wheel change
        MIDIfilter 5,192,192,1:        REM removes program change

        MIDI 5:                        REM clears input buffer
        number%=0                      REM number% will be used to take byte from
                                       REM input buffer; it must be initialised
REM Choose synth voice n:
        voicenum% = n + 1
        voicechange voicenum%          REM this passes variable voicenum% to
                                       REM subroutine called voicechange
RANDOMIZE TIMER                        REM seeds random number generator
DIM note%(2)                           REM dimensions array note% to hold note and
                                       REM velocity numbers for a particular note
music:

REM This space is reserved for the meat of the program

IF INKEY$="" THEN GOTO music           REM this scans Mac keyboard; if a key
LIBRARY CLOSE                          REM has been hit then close MIDIBASIC
END                                    REM library and end

REM      ********  Sub-routines:  ********
REM Sub-routine to select a new voice:
        SUB voicechange (voicenum%) STATIC
            statusbyte%=192
            REM "MIDIout byte%" = "send the byte 'byte%' to the MIDI interface":
            MIDIout statusbyte% : MIDIout voicenum%
        END SUB

REM Sub-routine to turn a note on:
REM (this is for channel 1; for channel 2 change ch% to 145)
        SUB on1 (note%, vel%) STATIC
            ch% = 144
            MIDIout ch% : MIDIout note% : MIDIout vel%
        END SUB

REM Sub-routine to turn a note off (channel 1):
        SUB off1 (note%) STATIC
            ch% = 144 : zero% = 0
            MIDIout ch% : MIDIout note% : MIDIout zero%
        END SUB
```

Example 2

```
FOR i% = 1 TO 2
        MIDIin number%                          REM takes the next byte from the input buffer
                                                REM and stores it as number%
        REM if no bytes have come in then MIDIBASIC returns -1; get rid of it:
        IF number% < 0 THEN GOTO music
        note%(i%) = number%                     REM stores note and velocity numbers in note%
NEXT i%

FOR i% = 1 TO 2
        PRINT note%(i%)                         REM prints numbers on screen
NEXT i%
```

Example 3

```
LFOspeedup:

        LFOspeed% = LFOspeed% + 2
        IF LFOspeed% > 99 THEN LFOspeed% = 99

        data1% = 240 : data2% = 67 : data3% = 16 : data4% = 18
        data5% = 54 : data6% = LFOspeed% : data7% = 247

        MIDIout data1% : MIDIout data2% : MIDIout data3% : MIDIout data4%
        MIDIout data5% : MIDIout data6% : MIDIout data7%

RETURN
```

Example 4

```
ON b% GOSUB red, green, blue, yellow
red:
        LPRINT "@HU000"                         REM change CVI value for Hue
        REM (for yellow send "@HU030"; green: "@HU080"; blue: "@HU170")
                PRINT #1, CHR$(192); CHR$(1);   REM prog change to PF2
        REM Send note-ons for three-note fourth chord on channel 1:
                PRINT #1, CHR$(144); CHR$(60+z%); CHR$(vel%);
                PRINT #1, CHR$(144); CHR$(65+z%); CHR$(vel%);
                PRINT #1, CHR$(144); CHR$(70+z%); CHR$(vel%);
        LPRINT "@WC":prevnum%=b%
        REM Send note-offs:
                PRINT #1, CHR$(144); CHR$(60+z% ); CHR$(0)
                PRINT #1, CHR$(144); CHR$(65+z% ); CHR$(0)
                PRINT #1, CHR$(144); CHR$(70+z% ); CHR$(0)
RETURN
```

Example 5

game where the performers could knock down Indonesian generals by hitting their Kat at certain velocities (the right cues caused bit-mapped graphics of generals to fall over). Scanned graphics (of East Timorese peasants etc) were read into the program and brought to the Mac screen by certain live MIDI cues. The words of poems (by East Timorese poet Fransisco Borja da Costa, who was killed during the attack on Dili) appeared one by one as an accompanying melody was picked out on the Kat, and a letter to the Editor of "The Sydney Morning Herald" was "typed" onto the screen according to which notes were played (hitting the note C [36], for example, caused an "a" to appear; C# [37] brought up a "b" . . .).

In Example 6 a scanned graphic of Borja is displayed in response to a particular note-on. A separate file (previously saved from the clipboard) must first be opened:

Other applications I've written include *Keyboard Kapers for Kids*, which is a simple little sequencer with an on-screen keyboard that little kids can use to record their own tunes and play them back through the Mac's internal speaker. A quarter-tone MIDI version of this is in the wings *(Kwarter-Tone Keyboard Kapers for Kids* [!]). Another one is *Tune-Typer*, taken from *Silêncio*, that provides a musical accompaniment as you type a letter to, say, your Mother.

For me the value of MIDIBASIC is two-fold: [1] I can now create interactive computer pieces where a live performer can control the program and thus direct the flow of the music as well as control other devices, create graphics etc; [2] when working on a tape piece with, say, a Fairlight CMI (which does not incorporate a random number generator), I use MIDIBASIC to fill in sequences that would be bothersome to program note-by-note (a high, dense, fast cloud of attacks, for example, that gradually thins and peters out). Dirty but useful programs like these can be quickly written, used, then trashed. C and assembly language programmers may sneer, but us MIDIBASICians are at home with our feet up while they're still hack, hack, hacking away . . .

What I Did On My Summer Vacation

- Warren Burt

Recently, I went around the world in 80 days (how's that for a post-modernist referential cliche??), and though I was ostensibly on holidays for the most part, trying to beat off artistic demands with a very large stick, I did encounter a number of things that might be of interest to the readers of Chroma. In San Jose, Ca., first port of call, I visited Larry Wendt and Dan Kelley and saw the progress on their real-time digital signal processing machine, which they call the "Guided Missile Project." The machine, which is based around the Texas Instruments TMS32010 chip, is quite fast and it sounds really good. They're currently working on a more portable and robust version of it at the moment. As for availability, it probably won't be made into a commercial product, but some of the research that has gone into it probably will end up available at some time of other. Dan also gave me a (he claims) really, truly working copy of TX7- his public domain version of MASC, a FORTH based language for control of MIDI gear. MASC is basically a set of FORTH MIDI words built in Laxen and Perry's public domain F83 dialect, for the IBM and clones running an MPU-401 interface or equivalent. Preliminary work with MASC and TX7 shows it to be a really powerful way to get FORTH programming to interact with MIDI. However, stay tuned for further reports as the inevitable glitches develop.

In Santa Fe, New Mexico, the most interesting development was not technological, but social. Composer David Dunn, video artist Joan Price, critic Gene Youngblood, and about a dozen other artists, all of whom work in video, sound, computer art, etc. have banded together to rent a common work space (a suite of offices) and have formed a media collective. The result of putting all those folks in one facility has been both an artistic success (lots of unexpected interactions) and a financial success. The artists involved find they are now getting enough commercial work to support themselves and still have time to do their own work. (A lot of this work, these days, is devoted to the campaign to oppose the US Government's plan to place its nuclear waste dumps in New Mexico!) The pooling of resources has led to unexpected financial viability for these artists. Is this a lesson, perhaps, that could be applied to Australia?

On the East Coast of the USA, in Albany, New York, I visited Intelligent Music a number of times, talking with Joel Chadabe, Richard Lainhart, Caroline Meyers, Frank Balde (visiting from STEIM in Amsterdam) and a number of other composers and programmers associated with IM. I saw demos of M, and Real Time (and picked up the new IBM version of M, available through Voyetra) and saw some of their new products in development, especially Paganini, the updated and improved successor to MIDIdraw, IM's gesture–to–MIDI conversion program. First being developed for the Atari, Paganini was one of a number of programs I saw that made me think a spare Atari on the work bench might not go astray. As far as development of new

"Paganini was one of a number of programs I saw that made me think a spare Atari on the work bench might not go astray"

software overseas is concerned, it looks like the poor musician's computer of choice. Also of interest was a demo of IM's video graphics and MIDI program for the MacII, Ovaltune. What I had seen of Ovaltune before had made me think it was just a toy, but the demos I saw at the IM studios made me see that it was quite a serious resource for graphics and sound synthesis, if one only takes the time to learn the program to it's full extent.

Down to New York City, where composer Annea Lockwood produced a piece at Staten Island's Snug Harbor Arts Centre that, while "acoustic," was the most "electronic" sounding piece I heard on all my travels. *Nautilus* is a composition for any number of adjoining very resonant spaces. Performers perform in the first chamber, and their performance is picked up by microphones (some in bottles) and relayed to the next space where it is played over loudspeakers into the space. The sound in that space is picked up on microphones and relayed to the next space, etc., the resonance of each space magnifying and adding to the resonance of the previous space. In this performance Annea, from New Zealand, worked with a pan-Pacific theme, and in the first resonant space, the two performers improvised on didjeridus, conch shells, bullroarers, shell rattles and a number of other instruments from the Pacific region. Some of the instruments (like the didjeridus) were in pairs tuned only a few beats apart. The audience was free to wander between the two spaces. In the first, one saw an interesting improvisation, but in the second, a very large glass and stone hall from the late 19th century, the resonance of the first space was modified into a really amazing soundscape. Though she is deeply involved in the world of MIDI and DSP these days, it seems that Annea's ear for the use of more traditional electronics is just as keen as ever.

"The most impressive development I saw anywhere on my travels, however, was the work of the Composer's Desktop Project."

Also in New York, I heard the premiere of the non-dance, musicians only version of *Five Stone Wind*, a four way collaborative piece between John Cage, David Tudor, Takehisa Kosugi and Michael Pugliese. Cage provided a structure, conducted and made timbral suggestions to Tudor, with his now highly microprocessor-ized famous table of electronic junk, Kosugi, with his contact mics, violins, glass plates and Yamaha Rex-50 digital effects units, and Pugliese, with his collection of large, very resonant stoneware bottles. The 50 minute performance was sparse, severe and very serene. Simple (and not so simple) polyrhythms continued for some time, changing into others. Most of the sounds were short, percussive and fairly noisy in content. The capacity audience gave the piece the standing ovation it richly deserved. This was classical musical abstraction at its finest.

In my last days in New York, I met Mort Subotnick and saw a demo of his new MIDI conducting program, still under development, which, using artificial intelligence techniques, allows a computer to sense and follow a conductor or performer's tempo and then play sequences or compose using algorithms in sync with the other performers. Mort was just off to London to perform with his program in a new dance/music composition, *The Key to Songs*, at the Alameda Festival.

Off to London I went too, where I got together with a number of the members of EMAS (the Electro-acoustic Music Association of Great Britain), saw the very impressive work being done by the Composer's Desktop Project, and saw a number of interesting public and private studios. Most remarkable of these was the studio at Morley College, London's version of the Council of Adult Education, where studio director Ron Briefel has assembled an amazing collection of low-end MIDI and computer gear to have 9 workstations, several with Atari computers controlling them available to members of the public enrolled in the college's low-cost studio courses. This sort of facility is badly needed in Australia. I wonder if any of the Councils of Adult Education, Worker's Education Associations, etc. would be interested in setting up such a facility?

The studios at City University in London, headed by the extremely friendly Simon Emmerson, are also very good. The course at City University is unusual in that it departs significantly from the usual rigid structures of British academia and allows its students a considerable degree of creative freedom. Which seems to be paying off, as graduates from the City Uni course, such as Javier Alvarez and Julio d'Escrivan proceed to rake in prize after prize in the European electro-acoustic competition circuit and establish themselves as a major force in European music in the 90s. Javier, by the way, is also currently working on a Mambo opera with Robyn Archer, which they hope to tour to Australia in the next year or two. Watch out for it – it should be quite wonderful.

The most impressive development I saw anywhere on my travels, however, was the work of the Composer's Desktop Project. I spent 5 days in York (graciously hosted by two of my favourite people on the planet, Trevor and Jackie Wishart), talking with CDP members Tom Endrich, Richard Orton, Andy Hunt and Trevor Wishart, and seeing the various things the project was doing. The heart of the system is, again, the Atari, but here the Atari is augmented by rather monstrous hard disk drives, and a device the CDP makes called a SoundSTreamer, which converts Atari info into a form the Sony PCM 601 (or 501 or 701) can handle, so that one can record the direct digital output of the Atari onto video tape. The first emphasis of the project has been on non-real time work, and they now have CSound, CMusic, the IRCAM-CARL Phase Vocoder, their own package of digital sound mixing utilities called GROUCHO, and a number of other packages of direct digital synthesis, analysis and DSP routines up and running. The sound quality, and what they were doing with it, were both impressive. Espe-

cially interesting were the sound transformations Trevor Wishart was working on, extensions of some of the work he recently described in his Computer Music Journal article. The CDP is also active in other areas as well, and Andy Hunt showed me a really nifty real time MIDI performance program called MIDIgrid. This is a program that anyone with an Atari with an interest in real time performing will want to have. Musical gestures made with a MIDI keyboard are stored as "boxes" on the monitor screen. When the mouse is moved across the proper box, that gesture is performed. One can also concatenate a number of gestures into a single box, and trigger off the same gesture a number of times, creating canons. It's a very simple program, but it has enormous flexibility and potential, and, at 134 pounds, is quite reasonably priced. Further info on the Composers Desktop Project can be obtained by writing to CDP, 11 Kilburn Road, York YO1 4DF England.

Everywhere I went in Europe – Belgium, (where Godfried Willem-Raes programs IBMs elegantly for real-time performing on his wondrous array of homemade and cheap MIDI electronics), Italy, Holland, Hungary, Austria, England, the computer had become an essential part of the composer's arsenal. Ataris, mostly, with some IBMs graced the desks of even composers mainly known for their acoustic music. The one curious exception to this was Germany, where Clarence Barlow told me he was tearing his hair out trying to tell the local composers that computers could be making their life easier. He was just about to give a 3 day seminar at the Koln Musikhochschule to the Koln composers community about the advantages and disadvantages of most of the available music notation software, and was hoping this would overcome some of the resistance that even some of the most adventurous of German composers were showing towards the new technology. Discussing this with Australian Caroline Wilkins, now resident in Koln, she was saying that a large part of this resistance may stem from the massive subsidies the German government gives to instrumental music. The position of the instrumental composer is so firmly reinforced by funding priorities in Germany that most composers, it seems, have developed a sense of complacency. Curious, that in a country one would have expected to be in the lead in technology.....

"Everywhere I went in Europe...the computer had become an essential part of the composer's arsenal...The one curious exception to this was Germany"

Of much more interest was the scene in Amsterdam, my last port of call, where at STEIM, headed by Michel Waiswicz, many interesting things are happening. One of these is a MIDI ultrasound performing system under development by Jon Rose and Frank Balde. Jon wears an ultrasound detector on the wrist of his bow hand. The ultrasound oscillator is placed on a shelf or music stand about two metres away. As he moves his bow, he changes the distance between the detector and the oscillator, and this distance is read by a single board microprocessor programmed by Frank as MIDI note-ons over a two octave range. These MIDI notes are then used as trigger signals for a composing program written by Frank to Jon's specifications which controls a small synthesis module which Jon has programmed to play sounds that resemble his violin playing. As he plays his amplified violin collection, the motion of his bow hand controls the production of a concerto-like accompaniment for him. A more elegant extension of the old one-man-band tradition would be hard to find.

Interview – OHM – Live Electronics

– Graeme Gerrard

The live electronic music collective, OHM, visited Melbourne at the end of June to do two concerts at the Victorian College of the Arts. OHM consists of five composer/performers attached to the Sydney University Electronic Sound Studio (SUESS): Fiona Allan (MIDI wind controller), Jim Franklin (keyboard, MIDI wind controller), Anthony Hood (keyboard), Julian Knowles (keyboard, drum pads) and Caroline Szeto (keyboard).

OHM uses some sixteen synthesisers in all, and an extensive range of other MIDI equipment. The set up includes Yamaha WX7 wind controllers, DX7s, DX7 IID, DX100, TX7s, TX81Zs, MEP4s, YMM1s, SPX90, REX50, DSP1, Korg DW-8000, M1, Roland D110, SRV-2000, Akai S900 samplers, Casio FZ1, Oberheim Matrix6R, Atari 1040 STs, etc. etc., as well as impressive audio gear. The Ataris run software the members of the group have largely written themselves, with contributions by Ian Fredericks, Director of the SUESS, and are used for real time processing and generation of MIDI data.

Although the group also usually makes use of computer generated graphics, slides and so on in their performances, they simply could not fit all this stuff in the truck for their Melbourne concerts.

The pieces they do in their concerts include those collaboratively composed by the whole ensemble, as well as individual works by Jim Franklin, Anthony Hood, Caroline Szeto, Julian Knowles and Ian Fredericks. They also performed a version of Terry Riley's *In C*.

The following is a transcript of an interview with OHM members Anthony Hood and Caroline Szeto.

GG: Caroline, let me start by asking you, as a very accomplished pianist, what the attraction is for you in music technology? Why do you want to play synthesisers?

CAROLINE: I've always had a fascination for machines, and I love computers. It's a sort of natural extension, if you are a musician you want to know about machines in music. I am currently doing a Masters Degree in composition with Peter Sculthorpe, my thesis topic being computer music. It's not like I decided about it, it just kind of happened as an extension to my work in the studio.

ANTHONY: I have been interested in computer music since I was about 14, that was in 1979 – although computer music barely existed in Australia then. I ended up at the Conservatorium [NSW State Conservatorium of Music] with Martin Wesley-Smith, just after they got their first Fairlight. Then, at Sydney University, I did the instrumental composition course for the first two years or so, but was really more interested in the electronic music, mainly because I think you have more control over the timbre, and also because you have more control over the performance. For about two years I only wrote tape pieces and I liked the feeling of having the power to realise, exactly, my ideas, and not relying on performances. I had previously had some bad performances of instrumental pieces in concerts. Also, I didn't feel I was limited with tape, I had a virtually infinite palate of sounds available.

The live performance thing really came about after the WATT concert last year [August-September]. The five of us in OHM were involved in that concert. We did a piece called *Jo-Ha-Kyu: Cutting Through Illusion*, which was semi-improvised music, with two Kung Fu dancers. That piece went so well, that we decided to continue the experiment to develop the idea of live electronic music performance, especially as there are so many different synthesisers and new gesturing devices available, like the Yamaha WX7. You can now have almost the same degree of control as you can have with tape. Previously, with the WATT concerts, there was often a problem because there was this thought that a tape piece can't really stand on its own two legs, that you need to have computer graphics or slides to go with it, because the audience needs to look at something.

GG: Was that a feeling on the part of the audience, or the composers, or both?

BOTH: Both.

GG: Who goes to WATT concerts?

CAROLINE: Lots of people, there's always a full house. There are five performances and ...

ANTHONY: Hundreds and hundreds. They are booked out every night, with 120 people a night...

GG: So WATT is not just a thing for fellow composers to go to.

ANTHONY: No, the WATT concerts have shown that electronic music can have a wider appeal than much [contemporary] instrumental and acoustic music. The WATT concerts in Sydney have a real tradition over many, many years. But whereas you used to be able to use some simple visual effects, say computer controlled slides, people now see so many dazzling special effects on television or whatever, that it's very difficult to compete with that; people are no longer so easily impressed.

CAROLINE: But it depends on the piece itself, the visuals are not just an add on, but are part of the piece.

ANTHONY: Although, say in the WATT concerts, most of the audience is a kind of University or Contemporary music audience anyway, most of us in OHM would like to reach a slightly wider audience. We don't want to simplify the music or otherwise sell ourselves or the music short in order to reach that audience; we have to somehow make it accessible, while still pushing and challenging the audience.

GG: Your equipment is all MIDI based?

CAROLINE: Yes, because that's what is available now...

ANTHONY: But I think all our backgrounds are with tape and analog synthesisers like VCS3s. About 2 or 3 years ago the SUESS became more of a MIDI studio; firstly based around Yamaha CX5s and DX7s, and then Ataris, which have taken things a step further. There is also a new direct computer synthesis system being developed there, based around the Motorola VME131. We are still very much all involved with SUESS, and it has been a great help with getting OHM going.

GG: In the concert, particularly in Anthony's piece *Ghost Gums*, for WX7 wind controller, played by Fiona - there seemed to me to be a problem; a problem of incongruity between what the performer does on stage, and the space

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Spatial manipulation of sound is something that you have to do carefully, there has to be a reason for having a sound whizzing around the room or going from left to right. You have to have a musical reason.

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that they're in, as defined by the sound. For example, it was rather strange to see Fiona make a gesture, and then the sound emerged a few moments later, from somewhere else, with reverb and spatial movement that suggested a different physical space. We are attuned to the experience of the performer producing the sound, a more immediate relation between the cause and result.

ANTHONY: Yes, the gestures don't necessarily correspond with the sound. Sometimes people don't cope with that. In some performances people have thought that I was triggering the sounds at the mixing desk. But it is not confined to the WX7, it also arises in some of the keyboard pieces. In one review of a concert we did, the reviewer brought up the same point. That there would be this triple forte chord bashed on the keyboard, but the sound would not come out till 30 seconds later as a squirt or crescendo somewhere else. But in *Ghost Gums* I really did try to make the correlation obvious between what Fiona did and the sound that resulted. The spatial thing maybe is still a problem. I had not thought of it as a problem before, that she

blows a note but the sound comes out behind her.
GG: It just seems to me that, as you said earlier, the idea of having a live performer is to overcome the lack of visual information when you sit and listen to a tape...
CAROLINE: But, I think it's part of the fascination, especially with the wind controller.
GG: I agree that it's fascinating to watch, but I find it distracts from my listening. However, it may be that it's a conditioned expectation. What do you think, do you get used to it?
CAROLINE: Well, yes I'm used to it...
ANTHONY: It is something we're aware of. When we are doing spatial things, particularly when we have 4 or 6 channels of sound, it's something that you have to do carefully, you know, there has to be a reason for having a sound whizzing around the room or going from left to right. You have to have a musical reason. Two weeks ago in Sydney we did a 4 channel concert that made much of use of the space, particularly in Julian's piece *Dissolve*; I don't think people really minded that. In many ways it's a matter of using the instruments for what they are best suited. The wind controller, for example, is suited to swelling dynamics more than, say, a keyboard. In Caroline's piece *Duet for Two DX7s*, well, that was actually written for the keyboard. It's a very idiomatic keyboard piece.
CAROLINE: Yes, with the unpitched percussion sounds where it doesn't matter which keys you play, I used running hand movements for visual impact, and for the long pitched sounds - I didn't use that. I think a lot of people enjoyed watching it, people come to see a concert not just to listen.
ANTHONY: In one of the early concerts we did in Sydney, people said we didn't look like performers, but like a bunch of composers sitting there playing pieces. Except perhaps for Fiona, whose background is as a performer; as a clarinetist.
CAROLINE: So we realised that, when we do perform in a concert, we have to make it a performance.
ANTHONY: And one way to ensure this is to write works that are really appropriate to the instrument, be it a WX7, a keyboard, an Octapad or whatever - and I think that we are achieving that. Also, something that was missing in the Melbourne concert that we almost always have in Sydney was the visual element. Usually, when we do the Riley piece, *In C*, we project the score, for example. Or we have, in one of Jim Franklin's pieces, the WX7 directly controlling the graphics, which are generated on the Atari computer. The WX7 MIDI out goes via the MIDI patch bay to the MIDI in on the Atari. So when Fiona plays a note in a particular octave, the graphics on the Atari changes.
GG: With 16 synthesisers and all the rest of the stuff, the set up and management of a concert must be a nightmare. I mean, each piece is different, loading the software between pieces, getting the right disks in the samplers, setting the MIDI channel assignments etc., that must be really carefully worked out. There were no technology problems at all in your performances. How long does all that take to get right?
CAROLINE: It takes all day to set up for one concert.
ANTHONY: We're getting better at it, but the first concert took 2 or 3 days getting ready. It's so complex, and there is such a lot of equipment. Some of the stuff is just plain heavy so there is a lot of physical effort as well. We rehearse the transitions between pieces a lot.
GG: Do you plan out the order of the pieces to minimise the set up time, to make it more efficient?
ANTHONY: No, we haven't so far. The musical reasons for program order have been more important, but this is something we do need to look at in the future. Actually, for this concert there are two pieces we can't do in the same half of the program because the samplers have to be reloaded. We do use a MIDI patch bay that's been programmed for all the pieces so we just need to select the program for each piece. We really couldn't do without that, swapping cables etc. We use about 50 MIDI cables, and we colour co-ordinate them now to make the connecting up quicker.
But we're more relaxed about problems in this area than we were early on. If something goes wrong we have someone tell jokes while we find out what the problem is and fix it.
GG: Where do the pieces come from? Are they all written by OHM members?
ANTHONY: Well so far, yes. Except for Ian Fredericks' *Murmurs of Chaos* and Terry Riley's *In C*. But we are looking around for new works, and we have asked other people to write things for us.
CAROLINE: We would be happy to look at anything that people have for us.
ANTHONY: We want new pieces to play. In the future we would like to do a recording, a CD. We did get a grant for this project from the Australia Council, and maybe we will be able to apply for commissions in the future as well.
GG: What else is coming up for OHM?
ANTHONY: Well, we'll be doing something at the next WATT concerts in September [WATT concerts, September 12 & 13, Everest Theatre, Seymour Centre, Sydney], and we'll also be doing concerts in The Stables Theatre in King's Cross in October, with a whole new program.
CAROLINE: Yes. One thing that we have found is that sometimes people who come to our concerts, come to see the technology. They expect to see the latest new devices and want to see us do new things with it all the time...
ANTHONY: Yes - new toys. Some people think electronic music is just technology, but a common view we all have is that it's about music. I think most of the audience has reached the stage where they come to a concert for the music, the technology is secondary. The machines are tools. And the other interesting thing about OHM is that there are two women in the group, Caroline and Fiona, - that's significant in the field of music technology.