In This Issue

ACMA Alive and Well

After being "off the air" for a short time, ACMA is back into it and looking forward to a productive and interesting year. ACMA will be mounting two concerts in October and November in Melbourne so if you wish to take part, contribute pieces and/or ideas or assist in any way please let us know. Due date for pieces is 31 July.

Annual General Meeting

The annual general meeting will be held on Friday 10 May 1991 at 7pm in the Heinze Room, Melba Hall, University of Melbourne, Royal Pde, Parkville. There will be reports from the President, Secretary, and a financial statement from the Treasurer. Committee members for 1991 will be elected and these include President, Vice-President, Treasurer, Secretary, and a representative from each State. Nominations for these positions will be accepted in writing up to the 6 May or at the start of the meeting. Don't be shy about nominating yourself, we need committee members.

We will also discuss plans for the coming year, so bring along any ideas.

ACMA CD

Arrangements for the CD are being finalized and the release date will be announced in the next issue of Chroma.

Contributions for Chroma 8

As always, we are looking for contributions. Articles, info, concert dates, reviews, interviews. Please get these in by the end of May. Chroma 8 will be posted in the last week of June.

Chroma is our means of communication, the way to share ideas. It can also be used to simply ask questions about music and technology. What would you like to see in Chroma? Do you have any ideas for feature articles ? Do you have something you want reviewed? Suggestions for columns?

Chroma is now distributed in the US by Frog Peak Music. So get yourself in print and reach an international readership.

Subscriptions

1991 Subscriptions are now due. A year's membership is from 1 March to the end of February the following year. Annual subscriptions are still only ten dollars.

Radio Exposure for Electronic Music

Random Round - ABC FM, Tuesday 11.30am

The Listening Room - ABC FM, Monday 8pm

This Modern Stuff - 3MBS FM, Sunday 7.30pm

Hard Listening - 3PBS FM, Wednesday 9pm

Ambience and Atmosphere - 3PBS FM, Tuesday 11pm

What's happening in your State?

COPYRIGHT AND COMPUTER GENERATED AND ASSISTED COMPOSITIONS

- Sherryn Tippett

Without a doubt, computer-generated and computer-assisted compositions are currently covered by copyright legislation, simply because all compositions, regardless of how they are generated, are covered by the Copyright Act. This was not always the case, but the government realised that there was a need to amend the Act in order to include computer-compositions. Initially, only compositions that were written in notation or recorded were copyrightable, but in recognising technological change, the wording of the Act was altered so that a musical composition recorded in any medium could be copyright protected.

Having established that computer-generated compositions are copyrightable, it is necessary to point out that much controversy and debate continues with regards to the ownership of these compositions. This is due to the fact that "the creation of such works may involve the use of programs and data bases, each of which may be protected by copyright. "..Is the author of such works the programmer, the compiler of the data base, or the computer operator? Or, do all of these persons[sic] have some right in the output?" (Perle, 1978, 253) These represent just a few of the questions raised by those concerned with the fairness of Copyright legislation, particularly in the CONTU Report (National Commission on New Technological Uses of Copyright Works 1978, United States), the Whitford Committee on Copyright and Design Law in The Green Paper (1981), and the Wipo Convention on Copyright (World Intellectual Property Organisation).

This issue is certainly complicated by the many ways in which a computer may be used to produce a composition. These methods were clearly listed by Risset (1979) as automatic musical composition; computer-assisted musical composition; composition by manipulation of musical data and matrix works. Other uses for the computer as a compositional tool include the computer program as a recording tool (Sequencer) and synthesis and processing of sounds by computer. It is these areas that now fuel the debate over who in fact is the rightful owner of compositions and sounds produced with the aid of a computer and a computer program.

Automatic Musical Composition

In this method, the computer program alone is responsible for (randomly or otherwise) selecting the various musical notes and values necessary for a musical composition, in accordance with certain rules laid down in the program. It has been argued by some that as the person operating the program (the user), contributes no effort towards the 'creative' process, then the author of the product should in fact be the person who wrote the program, for it is really their creative work that determines the way in which certain choices are being made. However, there is a second

argument which was put forth in the Whitford Committee's Green Paper, proposing that the purchaser of the program (who is also the user), should be the owner of the product that results from them running that program. A third argument is of course that because automatic composition results from pure random selection, no-one can be the owner of the result!

Computer-assisted Musical Composition

This method involves the use of a computer to assist the composer by undertaking certain compositional tasks, and then allowing the composer to discriminate between these in order to arrive, by a series of choices, at the final piece of music. The composition is produced by the creative choices that are made by the composer from what is generated by the computer program. Several arguments about ownership are made in this situation. Firstly, because the program is responsible for certain initial choices, the author of the program should be the author of the work. Secondly, because both the program and the composer's choices are necessary for the end product, then both programmer and user should share joint ownership. The Whitford Committee in it's Green Paper favours this proposal. Thirdly, because the user (composer) has purchased the program and the inherent right to use this program, and as the user makes certain creative choices, then they alone should be the owner of the resulting work.

Although all three proposals contain merit, it is my belief that as the user (composer) makes the final discriminative choices in order to produce the finished work, then he/she must surely be the rightful owner of that work.

Composition by Manipulation of Musical Data

This entails the production of a composition by manipulating the musical data of another existing (and probably copyright protected) composition. In this method, decisions are made by both the program and the user. The program is relied upon to make certain decisions about the way in which the musical data are manipulated, and the user must also make certain selective decisions. Therefore, it is possible that the ownership of the outcome could be shared by both the programmer and the user, or could belong solely to the user. It must be remembered however, that the initial owner was the person who composed the composition upon which the new work is derived. Naturally, if noticeable similarities between the first work and the derived work are present, and the user is not the copyright owner of the first work, a breach of copyright might occur. However, if permission has been granted by the owner of the first work for the use of their material, then another possibility is that all three people - the programmer, the composer and the user (composer) should share ownership.

In the United States, the new work resulting from this process is copyrightable either as an original work (if it bears no resemblance to the first work and if for example the chord progression was used rather than the thematic material), or as a derived work (arrangement), provided permission was obtained from the original owner. Contrary to this, in the Australian Copyright Act (1968), no mention is made of copyright subsisting in derivative works, although it is the

exclusive right of the copyright owner of an original work "to make an adaptation of the work" (Section 31(1)(a)(vi)).

Matrix Works

In some cases, the user of the computer program may be supplied with an unfinished composition within that program, which they may then change or complete. In this example, perhaps ownership of the resulting completed composition should belong jointly to the owner of the initial composition and the person who completed or developed that composition, or does the owner of the program as the composer of the unfinished composition relinquish his/her rights on the sale of that program? Some would argue also that if the programmer is not the owner of the unfinished composition, then this person should also share an equal part of ownership in the final product, unless they have sold their composition to the programmer. In any case, it is my belief that the purchaser of the program has bought the right to use both the program and the unfinished composition to create their own composition.

Computer Program as a Recording Tool (Sequencer).

This occurs when a computer program is utilised as a sequencer that records a performance of a composition. This area is less controversial with regards to ownership, except when the program also enables computer input into the development of the work. Only then may it be possible that the programmer deserves some credit. The recording process can however cause a breach of copyright when the sequencing program is used to record someone else's copyright protected work.

Synthesis and Processing of Sounds by Computer from an Existing Composition

This is the process of taking an audio recording or live performance, and using the computer to convert the material into digital data. In effect, this procedure produces a digital realisation or replica of a copyright protected work or performance, where not only the composition is copied, but also the original individual sounds have been digitally synthesised. In such a situation, it is clear that the only owners involved are those who own the initial recording, or possibly the composer if the rights haven't been sold. In the case of a performance, unless permission has been obtained, then an unauthorised recording is being made and copyright is infringed.

Despite the current debate over ownership when a computer program is used to either generate a musical work or as a compositional aid, no solution has yet been found. To date, the Copyright Acts in the UK, USA, Canada and Australia consider the composer of the music (or the user of the program if that person is not using someone else's copyrighted musical work) to be the copyright owner of the resulting musical work. "Unlike a patentee, who obtains 'the exclusive right.... to make, use, exercise and vend' the subject invention, the exclusive rights conferred upon a copyright owner do not include a monopoly in the use of, or dealing in, the copyright work. Once a work is purchased, the owner of copyright is unable to control the number of times the purchaser uses the work....the purchaser may deal with the work 'entirely as he chooses'." (Stern, 1986, 337)

There are no special provisions within the aforementioned Copyright Acts with regard to copyright of computer music, simply because each piece of computer music is considered to be a work in its own right and therefore is covered by copyright just like any other original musical work.

There has been one final argument with regards to ownership that applies to all forms of computer-generated and assisted compositions. Some have suggested that the computer itself should be afforded some measure of ownership in computer-generated or assisted works. By this, it is meant that the person with the patenting rights for the computer should also receive royalties. Such an argument is quite unjustified, because the computer itself is really only a tool in the way that pen and paper are tools for an author. After looking through several sources, fortunately very few lawyers and legislators take this issue at all seriously!

Solutions and Conclusions

Having established what is and isn't protected under the Australian Copyright Act, and the grey area in between, there is certainly a need for legislation to investigate the areas not covered. This is particularly true in the area of patch copyright. At present, individual patches are not considered to involve a significant enough amount of creative work in order to warrant protection. Yet these sounds are frequently 'stolen', causing a detrimental loss of income to many programmers.

Although the programming of one sound alone does not take as much work as that involved in an entire bank of sounds, it must be remembered that many of these 'sound technologists' spend many years learning and refining their skills in order to arrive at the point where they can program these sounds. It would appear then, that patch copyright is justifiable, but its incorporation into the Copyright Act could raise many complex problems.

The first of these problems, is how should a patch be registered or 'fixed in a tangible medium of expression'? Several possibilities include :- floppy disks, data sheets, waveforms or audio tapes. Each of these methods however, presents distinct problems. Floppy disk drives are not available on all synthesisers, and really only provide digital or graphic data. Data sheets are quite feasible, but in accepting a new registration, it would be extremely difficult to check that the sound submitted was in fact original by sifting through other registered data sheets. The same problem applies also to the use of waveforms, and the diagrammatic nature of these would increase the problem. Perhaps the most practical method would be to store sounds on audio tape, but even this presents problems in checking for originality, in that a fine-tuned ear would be necessary.

The next major problem is how should originality and ownership of a patch be determined, and a breach of copyright proved? This is a complex issue, because it is possible to take an existing patch and change just a few parameters. This practice permits three possible outcomes :-

1) no aural difference;
2) slight aural difference; and

3) a substantial aural difference.

As solutions to copyright pertaining to each of these outcomes, I would suggest :-

1) If there is no aural difference in the 'new' patch, then copyright of the first patch has been infringed.

2) If there is only a slight aural difference, then perhaps the new patch should be classed as a derivative patch, and permission should have been obtained from the original owner.

3) If it is evident that the new patch is substantially different to the first, then this new patch should be afforded the protection of a new patch.

As mentioned previously, Bo Tomlyn(1986) suggested that royalties be paid to the original patch owner, based upon the amount of work that was necessary to achieve the derived patch. This is a possible solution, but it presents two major problems. Firstly, if a derivative patch is altered to create another derivative patch, and this patch was in turn again altered (etc.), a long chain of 'percentage' owners would develop. This could cause severe 'headaches' particularly for copyright collecting agencies and lawyers. Secondly, Tomlyn's proposal doesn't encourage synthesiser programmers to develop new patches by using an existing patch as the starting point, which is a common occurrence. Patch copyright is certainly a complex issue, but not an insurmountable problem.

Yet another problem warranting the attention of Copyright Legislators is the fact that the Copyright Act is unclear even to those in the legal profession. This makes knowledge of Copyright protection inaccessible to many musicians, frequently hindering their chances of taking action. In finding a solution to this problem, it would no doubt be necessary to totally reword the Copyright Act in lay terms.

With regard to Copyrightability of computer-generated compositions, and despite the debate over ownership of musical works in this medium, I firmly believe that the Act is fair and just in giving ownership of these works to the composers (or users).

It is clear to see from recent amendments, that the Copyright Council is trying to cope with the many implications of new technology, particularly with the introduction of Performer's rights in the 1989 Amendment, and the coverage of computer programs in the 1984 amendment. Nevertheless, the processes are slow, and in the meantime, musicians, programmers and the like are losing royalties. I recently approached the Australian Copyright Council to see if the issue of patch copyright was under review. According to their representative, the Council is currently more concerned with the implementation of rental rights, compulsory licences and the blank tape royalty scheme. They admit that although the legal position in the area of patch copyright is unclear, until legal action is commenced there will appear to be no need to review the situation. In other words, there has not been enough debate over patch copyright in Australia, to warrant the attention of the Copyright Council. Also, the issues currently under review involve large businesses rather than the 'little man'.

The Australian Copyright Act in comparison to overseas models as supplied by Canada, The United States

and Britain is surprisingly relevant and up to date in certain areas of music technology. Under the Act, computer-generated and assisted compositions are clearly covered, and the particular aspects associated with sampling technology such as copyrightability of recorded sound and performer's rights are catered for. However, the Act fails severely in the area of patch copyright and copyright of individual and original samples. Amendments are required so that sounds may be copyright protected. This is certainly feasible, because sounds may be digitally documented and could therefore be covered under the Act as a literary work just a computer programs are, or alternatively they could be recorded and classed as sound recordings, with a few amendments to this part of the Act. Such an amendment, although requiring considerable effort on the part of Copyright legislators, is by no means impossible. However, until the Copyright Council is shown that there is a real need for patch copyright, it will continue to focus on other areas of technology that are receiving more public attention. If the issue of patch copyright is reviewed by the Council, which I feel certain is inevitable, the implementation process will be slow. The approach of the Australian Government to date "...has been to introduce change by installments rather than a full revision of the Copyright Act. This approach has its disadvantages, but provided the impetus for reform can be maintained in a field that does not normally enjoy political priority the economic and cultural contribution of the copyright industries will be maintained." (Bridge, 1988, 481) Yet another major problem related to copyright and technology is that where legislation is unclear, cases are entirely open to the court's interpretation, and copyright owners who wish to take legal action risk the possibility of incurring exorbitant court costs if they lose.

The last couple of paragraphs of Warren Burt's article on interactive composing programs in Chroma 6 should be as follows. (I think the omission was caused by sunspot activity. Either that or cosmic rays).

The idea of extensibility is one that hopefully, more and more programmers will build into their programs, thus allowing even greater proliferation of ways of thinking about composing than presently exist.

M available from Dr. T's Music Software, 220 Boylston St., Suite 206, Chestnut Hill MA 02167 USA; *MI pc* from Voyetra, 333 Fifth Ave., Pelham, NY 10803 USA; *Sound Globs* and *Drummer* from Cool Shoes Software, PO Box 391, Burlington, MA 01803 USA; *Cakewalk Pro* from Twelve Tone Systems, PO Box 226, Watertown, MA 02272 USA. For information on *Ravel* ring Warren Burt on (03) 534-4916. I may not be home a lot, but keep trying.

The Pan Pacific Music Technology Camp
- Dennis Patterson is interviewed by Gordon Monro

Recently, Pan Pacific Music Camps have held a Music Technology camp in Sydney each January. Dennis Patterson, who directs the technology camps, talks about them in an interview held in October 1990.

GM: Could you say a few words about Pan Pacific Music Camps in general.

DP: Pan Pacific is a non-profit organisation supported by business people and the Sydney Conservatorium of Music. Most of the responsibility for organising Pan Pacific is carried by the Conservatorium, and in particular by Dr Ronald Smart.The main purpose of the Sydney summer camp is to bring together gifted young musicians from the Asia-Pacific region.

GM: How does the Music Technology Camp fit into this framework? For one thing, it caters for all age groups.

DP: The Music Technology Camp addresses a whole new movement in music education.Because it is such a new area, we appeal to a very wide target group, from students through to music educators who want experience in the area for their own teaching.Because it is an area one can get involved in without being a strong performer,because it involves composing and so on, it appeals to people who want to be involved in music-making and technology without having those many years of study on an instrument before they can have the privilege of making music. So it has abroad appeal.

GM: Do you have limited places in the technology camp?

DP: Yes. We are limited by the availability of workstations to about 12 people per workshop.

GM: And do you have enormous numbers of applications? Well, we do have to be selective. We try to choose those who would benefit the most, and who would have the most influence. For example, if we had a student and a teacher of equal interests and background, we would take the teacher, because the teacher would then be able to share the experience with more people. This year for the first time we're running two camps, one advanced, so there will be more places.

GM: It's a residential camp?

DP: Yes — held over 6 days.

GM: What was the original impulse to set up these camps?

DP: It was really Dr Smart's idea. He then approached me.

GM: But you actually got to implement it.

DP: Yes — but it was at his invitation, his suggestion.

GM: What topics do you cover?
In the basic camp we give an introduction to the whole area of music technology.We look at digital synthesizers, sound creation, using sequencers for composition.We also look at the computer and using MIDI to link computers and synthesizers.Also samplers, effects units, and so on. In the advanced camp we'll be going further into composition, looking at applications of technology to composition technique, and soon. Also for the first time this year we're going to be looking at linking with video, SMPTE time-coding, animation and so on — the whole area of a multi-media production with sound and visuals.

GM: Where do you get the equipment from? You do try to supply each student with his or her own.

DP: We have been sponsored by companies, Roland, Yamaha, Atari, who lend use equipment, and also we use the Conservatorium's own equipment.

GM: Where do you find your instructors (apart from yourself)?

DP: Some have attended past camps; others are Conservatorium graduates who have completed the music technology program in Music Education. For special demonstrations, we sometimes rely on commercially available clinicians.Particularly for very new equipment, which maybe the staff have not had an opportunity to use,we rely on the company's tech support crew to come along and demonstrate it.

GM: The staff isn't paid large sums?

DP: No, just expenses. We do it for the love of it.

GM: And the clinicians? Do they offer their services free?

DP: They generally do.

GM: I was in the first course (January 1989). One thing that struck me was that everybody spontaneously got into composing, really without any instructions from the staff, and continued to compose despite attempts by the staff to get them to do other things. Has that continued to happen, or has it become more structured?

DP: I think those who came to the first camp were already motivated in composing,and maybe had very limited equipment at home. So people started working immediately on a project. You may remember that although people got a concept very quickly, it took days and days to get it in some satisfactory form. What we've tried to do of late is to give more structure by limiting the options to begin with, so that people are not overwhelmed with the possibilities. This is usually done by playing a composition, a synthesized work, at the beginning, and looking at the elements in the composition. Maybe there is an ostinato pattern followed by some harmonic changes,but the focus is really on a long haunting melody in a minor key. We might say:let's emulate this: we need a certain texture to begin with, we want a flowing pad sound, so let's use a string effect, we want an ostinato pattern, and so on. So we try to emulate an example. And that hopefully triggers off a whole lot of possibilities later on, when they get into more of a free composition style.

GM: So towards the end of the week they can cut loose?

DP: Yes. The whole idea is that it's far easier to learn composition if you're given various parameters to work with, and you exhaust them, and then you're given more.

GM: Evidently the camps have been a great success from your point of view.

DP: Well, I think so. We have people wanting to come back year after year. Last year, for the first time, we had a problem of grading. People who came back were mixed in with the others, and it was a little frustrating for them. That's why we've gone to separate groups this year.

GM: Presumably there would be the possibility, if someone had the energy, to set up camps in other States.

DP: I think that would be tremendous. The Roland company and the Atari company are very keen about setting up summer camps in music technology and working in with us,

providing equipment and assisting with staff. Obviously there's an enormous need for education in this area. In America there are summer music technology camps all over the place.

GM: What advice would you give to someone trying to set up such a camp?

DP: There are really three components. You need staff, you definitely need commercial support for the equipment, and you need students — you need to know how to advertise to get the students you want. The last thing you want is to get people hoping to learn one thing, when you're going to teach them something completely different.

GM: You were able to get students through the Pan Pacific apparatus.

DP: Yes, we mail out to all the schools. So — finding your students, finding staff and finding the commercial backing to do it.

GM: It's a big job, even with the resources of the Conservatorium.

DP: It's a very big job. Anything with technology and groups of people, where there are thousands of things that can go wrong, and generally do... You need to have a very reliable staff, who can very quickly find problems, and reliable equipment.

GM: Final comments?

DP: The final performance standard reached in these camps is quite high, considering the background of the people involved. That's because if they can conceive an end-product then they certainly have the resources with the equipment to produce something that's in time and in tune — if that's what they want. You can have musical success.

GM: The music technology people perform at the final concert of the whole Pan Pacific camp.

DP: Yes — they do get an audience. Another comment is that generally the keyboard skills have been from beginner to just intermediate. It's rare to find a concert pianist who wants to do this. People who are very accomplished on keyboards don't seem to be interested in the technology. In fact some are threatened by it.

GM: Do you know what's happened to some of the past participants?

DP: Yes. One from South Australia is still writing jingles and so on. A number of others that came from high school are playing in bands or have set up home recording studios. I hear from them from time to time. They have all, as far as I know, continued in their interest. Once they got the passion, they have continued on.

Dennis Patterson is Lecturer in Music Education and Computers at the Sydney Conservatorium of Music. He has been heavily involved in the development of the SoundScope educational computer program, which links a visual display with sound from a computer-controlled CD player.
Gordon Monro is on the Mathematics staff at the University of Sydney. He attended the first Pan Pacific Music Technology Camp, and is currently involved with the computer music project in the Music Department, University of Sydney.

International Computer Music Conference 1990

- Report from Alistair Riddell

Location

Glasgow, the 1990 European Capital of Culture, turned out to be a very pleasant location for the 1990 International Computer Music Conference (ICMC) which ran from 10-15 September. The once notorious industrial city has in recent years received a considerable face lift which fortunately has not obliterated the city's former character with excessive post-industrial zeal.

As a Melbournian, I felt quite at home in Glasgow. This host city offered more of a sense of a "city" than Columbus, Ohio which hosted the ICMC last year. Being able to move around either by walking or public transport helped to develop a sense of engagement with the place beyond the conference. Furthermore , Glasgow seemed in the grip of a cultural event and beyond the activities of the conference, one felt that the place was culturally active. I didn't necessarily prefer the actual conference to the other, in fact, I would find it hard to say which was more interesting. Both conferences had quite different characters.

The ICMC, was the joint effort of the Computer Music Association (CMA), University of Glasgow and The Royal Scottish Academy of Music and Drama. The conference activities principally took place at one location - the Royal Scottish Academy of Music and Drama in Renfrew St. The subway - affectionately called "the ClockWork Orange" because it is orange and goes round in a circle, I assume - made it particularly easy to get to and from the venue itself, although it was almost in the centre of the city. No lengthy walks were required since it centralized the myriad of activities that usually take place at these things.

The conference was very well organized and ran smoothly thanks to the administrative staff. What, however, was a little intimidating was the tight security that kept out people who had not forked over the nearly A$200 registration fee. Attending the conference was not cheap. The CMA also did not have enough funds to include a CD this year which was an interesting addition to the attendees package last year.

Papers

One of the great challenges in attending conferences, in general I suppose, is determining what you want to see and hear, and whether it is possible. In parallel paper sessions the art of deciding where to go becomes painful around the third day. At most, there were 6 sessions on simultaneously but usually it was around 4.

This year there was a restriction on the size of submitted papers (3 pages for some and 4 for others) and presentations were around 20 minutes. So what do you hear about in 20 minutes? Usually just a sketchy elaboration of the subject not already included in the paper. The last 5 minutes are dedicated to questions (if any). Some of the papers were interesting, some esoteric, some quirky and some really dull, it depends on what your interests are and

who is presenting the paper. I didn't always attend papers on subjects I had a strong interest in, largely with a view to finding out what other people are up to - hence the potential for boredom - and practically, because what I really wanted to see was not always on. Also titles of papers are sometimes misleading.

The papers presented this year covered 13 categories (see proceedings for breakdown and Vol 10. No 4. issue of ARRAY in which the conference receives detailed reviews from many contributors) covering more topics in detail than in the past. One that will be no doubt growing in the future was titled "Applications in Education and Learning". The emphasis here was on instruction and tutorial systems and reflected a variety of concerns.

While by now most of the papers are but a blur in my memory, one that should be mentioned is the keynote address given by Jean-Claude Risset. Risset's address, "From Piano to Computer to Piano", presented him in a new perspective. The paper was actually pre-empted by a performance last year in which Risset play the Yamaha Disklavier and had his performance interpreted and played back on the same instrument. The work was called "Duet for one pianist". This was the result of work carried out at MIT in 1989 in collaboration with Scott Van Duyne.

The "Duet" consists of 8 sketches that demonstrate various interactions with the performer. They are Doubles, Mirrors, Extensions, Fractals, Stretch, Resonances, Up Down and Metronomes. He spoke about each and presented excerpts on the grand version of the Disklavier. He was using a MAC-II running a modified version of MAX.

In conclusion, Risset expressed his opinion that this was a very challenging field for computer music. In particular, he was concerned about interactive systems and their ramifications. At any rate he appeared to enjoy performing and curiously enough "Duet" sounded very French.

How to make money with computer music.

Brad Garton from Columbia U. chaired an interesting session on "Making Money with Computer Music". He told me that it was subtitled "Cashing In or Selling Out". Needless to say it stimulated some heated discussion. Not during the initial panel discussion but later at a second open forum. The panel for the discussion in the first instance consisted of Jean-Claude Risset, Emile Tobenfeld (Dr T.), Brad Garton (Chair), David Jaffe (NeXT) and Leigh Landy. These people were supposed to represent the polarities of this issue, from the commercial perspective (Dr T.) to Risset. In reality, the hardcore business types stayed in the sanctity of the Trade Show room and left the moral conflagration to the music types (of which all of them were).

Perhaps, because the subject brought a new sense of the social function of music practice into what is essentially an academic conference, I was curious to find out what the extremes were going to be in this matter. What it boiled down to was, to what extent should someone adopt a commercial attitude in selling computer music software (I didn't get the impression that hardware entered into this). Since it was clear that there wasn't much money in this area (just consider the panel) the debate was somewhat luke-warm. The impression was that you could try and good luck to you.

Technology

For a number of reasons the trade Fair was smaller than last year's. I guess it is easier to get to the US mid-west than Glasgow for most equipment manufacturers. There didn't seem to be much of a showing of British technology. Ariel were there and I remember also a few publishers in booths as well. CMA, of course.

The computers of choice among the participants were Macs and NeXTs, with Atari's and more exotic systems well down in comparable numbers.

The high end hot topics where the NeXT IRCAM workstation with its separate board of 2 i860 processors and up to 32 Megabytes/board (you can add up to 2 more boards per NeXT Cube). This real-time signal processing behemoth was complimented by a rapid prototyping system called ANIMAL which allows the user to draw pictures which define complex data objects and it has its own operating system for real-time data passing. A board (and software?) were said to be around US$12,000. What ever happened to the Sun/Mercury Workstation at IRCAM?

It should be noted that last years ICMC was a buzz with another multi-DSP box, the "Reson-8" from the Center for New Music and Audio Technologies at U.C. Berkeley, which was also impressive but isn't widely in use, as far as I can tell. There is no doubt that the 56001 will be around until the cost of the 96000 and comparable DSP processorsdrops. Currently it seems to be the defacto signal processing unit of choice in computer music circles simply because it is cheap and relatively functional.

Also in the offing was word (but no appearance) of the Ariel Quintprocessor 5 x 27MHz DSP56001's on a board for the NeXT. It was rumoured to be around US$6000.

The Composers DeskTop Project was well represented and showed that it was possible to develop a functional computer music system without initially buying an expensive general purpose computer and adding exotic h/w. There is obviously some tradeoff between integration and complexity, and a system that is cheap, available and running. It was the subject of several papers and concert works were produced using this system, i.e., Rudolfo Caesar's "Introduction to the Stone", Mike Vaughan's "Crosstalk" and Paul Rhys' "Ebb and Flow".

On the whole, there was almost no new computer music equipment on display compared with last year. This appeared not to be the place to announce new synths or post-processing effects units, at least not this year. The ICMC is generally regarded as a meeting place for academic and free lance composers and music technologists with emphasis on research and noncommercial or pre-commercial music technology projects.

Music Concerts

Before discussing the music presented at the ICMC, some mention should be made of the performance venues and equipment used.

The main lunchtime and evening concerts were held in Stevenson Hall which was fitted out with the BEAST (Birmingham Electro-Acoustic Sound Theatre). As it turned

out, this was a unique sound system designed specifically for the performance of electro-acoustic music. The system is run by a group of composers working in the medium and for the occasion, consisted of 30 main speakers (some actually suspended in the air). Also, above the audience were hung 2 "grids" of about 56 tweeters. The point to all this was the ability to dramatically diffuse sound to different parts of the concert space and hence acknowledgement was usually given to the "Sound Diffuser" who largely messed with the 2 channel pieces in ways that were sometimes more interesting than the pieces themselves.

This approach to the presentation of tape music (and real-time performance for that matter) is more common in Europe than the US unless it is somewhere like the Media Lab Cube. In general, it is the composers responsibility to organize the spatial dynamics and altering that in real-time seems more like a gimmick to hype the concert hall atmosphere than to necessarily significantly enhance the nature of the work. I guess sometimes it does and sometimes it doesn't.

STEIM Time as it was called was held in the New Athenaeum Theatre and featured new instruments and music from Michel Waisvisz and the STEIM group. Although I managed to miss most of their 2 performances I did catch the end of one called "ABrACADABrA", a collaborative work between Michel Waisvisz and BMBCon: Justin Bennett, Roelf Toxopeus and Wikke't Hooft. This concert was very interesting and very loud. The performance consisted of 3 performers on stage with strange pieces of electronic equipment - that looked lab concocted - strapped to their wrists. As it turn out the equipment consisted of the "hand" - a series of finger switches, and for the other hand, a transmitter with a long antenna. The antennae acted as "joy sticks" and the performers tended to perform in an autonomous manner with little apparent group interaction, although it may have been deceptive.

There appeared to be quite a few physical movements that would trigger sounds as well as how close both hands were brought together. Exactly what was being conducted (apart from themselves) remained unclear. In comparison with the other concerts, this was music with a raw edge. This approach to electronic improvisation drew on dark, abstract sounds of extreme dynamic contrasts which occurred unpredictably. Even though you are watching the performers produce the sounds, their gestures often appeared inconsistent to the sounds they were producing. Hence they did not always mean what you thought they meant. Consequently, a torrent of ear splitting noise was sometimes the result of a 45 degree turn of the wrist while dancing all over the stage might only have created a whisper.

Two installations were also set up in the Glasgow Museum and Art Gallery at Kelvingrove museum in the Kelvingrove gardens. These installations were, as one might expect, very different. One was for 48 computer controlled vacuum cleaners and the other was a NeXT based graphics oriented interactive environmental soundscape. Unfortunately they were side by side rather than in separate rooms. Which meant that they could not be run simultaneously.

The vacuum cleaner installation "Was Der Wind Zum Klingen Bringt" by Simone Simons and Peter Bosch was very impressive in a loud, airy way. Each vacuum cleaner blew air through metal or PVC pipes which acted as sound chambers with different pitches (and timbres, although it was hard to tell). They were controlled by being turned off and on from an Atari 1040.

The score, based on linear automata, could be seen self-generating on the monitor of the Atari. The result was an unpredictable sequence of timbres, harmonies and dynamics. It is intended to create, apparently, the illusion of a living object.

"Resonant Landscape" by Francis White brought together the sense of improvisation with environmental and processed sounds. Most of the material was bird song which had been recorded and signal processed but often left in an unprocessed form. The installation consisted of an imaginary map displayed on the NeXT machine with a cursor which moved around this map. The direction of the cursor was changed by pointing to a different location in the map with the mouse. When no one played with it, it would wander around by itself. As the cursor moved into different areas of the map new sounds were presented. The idea being that it was like walking around listening to the sounds of that location. Because the NeXT could only store a certain amount sound files (probably around 600 Megs), sounds were also prerecorded onto Beta tape and mixed in through a DMP-11 which was controlled by MIDI from the NeXT. So one couldn't tell whether the sounds were actually being played from the NeXT or the tape.

As an installation "Resonant Landscape" had the advantage of being interactive and endless. It began when the user engaged the system or simply began listening to the sounds coming from it.

There was also an out door, public art performance installation called "COLOURSPACE". Connected modules of inflatable PVC structures permitted people to experience sound and colour while moving around inside.

One criticism I have is that there wasn't nearly enough variation in the presentation of music, again comparing it with last year. Different concert venues would have relieved the sameness of the material, especially the main concert material, and perhaps allowed a greater diversity of computer music. This situation was probably due to lack of funds and convenient performance locations.

Future ICMCs

In 1991 the ICMC will be in Montreal from October 16-12. ICMC 1992 will be in the San Francisco Bay area at San Jose State University from October 12-18.

New Music Concerts 1991 (Melbourne)

Linden Series Concerts and Forums
This year's Linden series is bigger and more diverse than ever. And in addition to the concerts, we now initiate a series of monthly forums, where composers and performers talk about their work -what they do, how they do it, and why. The following composers and performers are appearing at Linden in 1991.

CONCERTS: MOSTLY Saturdays at 6pm

Sat 16 March
Warren Burt, Jacqui Rutten,
Peter Graham, Robert Jackson
Howard Skempton played by Warren Burt
Tom Johnson played by Brigid Burke

SUNDAY (NOTE!!) 21 July
Andree Greenwell, Sue Blakey
Al Wunder, Peter Simondson
Julian Driscoll, Tony Hicks
Graeme Davis

Sat 20 April
Hope Csutoros, Chris Knowles
Greg Rosser, Rob Burke
Kaylene Mulcahy plays Felix Werder
Duncan Gibbs, Brigid Burke

Sat 10 August
David Chesworth, Steve Charman
Graeme Leak, Jacqui Rutten
Syd Clayton, Ross Hazeldine
Craig Dickason

Sat 4 May
Rainer Linz, Vineta Ladsdina
Emma O'Brien sings Thomas Reiner
Robert Zocchi, Amelia Barden
Roger Anderson   Herb Jercher

Sat 19 October
Walter Billeter, Brigid Burke
Julian Yu, Douglas Ray
Neil McLachlan, Howard Dillon

Sat 15 June
Ernie Althoff, Karl Billeter
David Hirst, Ros Bandt
Anne Shirley-Peel, Tom Fryer
Leah and Duncan King-Smith

Sat 16 November
Chris Mann, Cindy John
Alison Thomson, Elwyn Dennis
Judy Pile, Graeme Davis
Linda Ceff, Graeme Gerrard

FORUMS On Saturdays at 6 PM:
23 March - Warren Burt
27 April - Hope Csutoros
11 May - Rainer Linz
22 June - Ernie Althoff

27 July - Andree Greenwell
17 August - David Chesworth
26 October - Brigid Burke
23 November - Chris Mann

These concert and forums are funded by: Victorian Ministry for the Arts/City of St. Kilda

Astra Chamber Society tel. (03) 372 1040

April 28	July 19 & 20	Sept 29
May 18	July 28	Nov (date to be announced)
June 2	Sept 6	Dec 13
June 23	Sept 15	

Encounters - Electroacoustic Music by Graeme Gerrard & Thomas Reiner
Melba Hall (Royal Pde Parkville) May 15, 8pm. tel. (03) 344 5256

Melbourne Improvisors Association:
(Fringe Network Space, Brunswick St, Fitzroy)

March 24	June 2
more to be announced	

Elision Concerts tel. (03) 489 9420
March 17
May 19
Sept 29

Modern Image Makers Association
(Linden Gallery): tel. (03) 534 3359

March 10	August 18
April 5,6,7	Sept 29
May 12	Oct 13
June 2	Nov 10
July 7	