The Democratization of Computer Music: Upsides and Downsides

Warren Burt, July-August 2013.

Keynote Address for International Computer Music Conference, Perth.

First of all, I'd like to welcome all of our overseas guests to Australia, and I hope you're enjoying your time here. Despite its huge distances – you're closer to Singapore here, than you are to either Sydney or Melbourne – Australia is a relatively small country. It has less people than in either the New York or Sao Paolo metropolitan areas, and even less people than, for example, Canada. Yet despite this small population, it has made significant contributions to the field of music technology. To name just a few, Jack Ellitt's musique concrete work using optical soundtracks in the 1930s (he continued working until the 1990s) was pioneering. Then there was Percy Grainger's work with Free Music in the late 40s and 1950s, where, together with Burnett Cross, he made all sorts of machines, both acoustic and electronic. Much of that work is housed in the Grainger Museum in the University of Melbourne, and those of you heading over to Melbourne after this are warmly welcomed to the Museum to have a look at his work. Simultaneously with Grainger's work (much of which took place at his home in White Plains, NY), Trevor Pearcey was working with the CSIRAC computer, doing what is most likely the world's first computer sound synthesis, as well as some very early work with algorithmic composition. This work is thoroughly documented by Paul Doornbusch and the CSIRAC is now in Museum Victoria. Moving along, we find Stan Ostoja-Kotkowska's work with electronic sound and light sculptures in the 1960s, which Stephen Jones has written eloquently about. In the 70s, Tony Furse's work with digital synthesizers, was eventually developed by Peter Vogel and Kim Ryrie into the Fairlight CMI, one of the first practical computer sampling instruments. And in the early 1970s, in Perth, James Penberthy made live interactive algorithmic pieces where the performers read the results off computer screens in real-time. After this there is a veritable explosion of developments in music technology here, including electronic sound sculptures by Stephen Dunstan, Robin Whittle's many hardware developments and hacks, Julian Driscoll's analogue synthesizers, David Worrall's "Dome" project, and Greg Schiemer's Tupperware Gamelan which morphed into his current work with multi-person performances with mobile phones, among many others. Closer to the present, Australian developments in software design include Ross Bencina's work with AudioMulch, Peter McIlwain's work with the software Nodal, and Andrew Sorenson's work with developing environments for live coding, such as Impromptu. So for a small country, Australia is "pulling above its weight," in the language of sports commentators. For those interested in seeing more developments in this field, I can highly recommend the Australian Sound Design Project which is at http://www.sounddesign.unimelb.edu.au, which is Ros Bandt's

magnificent archive of sound developments in Australia up until 2007. Also highly recommended is Rainer Linz' NMA site (http://www.rainerlinz.net/NMA/), Clinton Green's Shamefile Music site, which contains extensive documentation about Jack Ellitt's work among many others (http://shamefilemusic.com/), and Jon Rose's Australia Ad Lib site, which contains a lot of information about unique aspects of the history of music in Australia (http://www.abc.net.au/arts/adlib/).

The theme of my talk is "The Democratization of Computer Music," and when I first contemplated this as a theme, I thought that it might be almost superfluous to talk about that to an audience like this. After all, a lot of what we're doing, and have done, is a primary contributor to that phenomenon, and I'm sure every one of us has a feeling of being overwhelmed at the speed of innovation and the sheer amount of things that are appearing. However, I also thought that using my own career as a lens through which to view this phenomenon, there might be some interesting insights along the way, and maybe even a few giggles.

There are two terms here – "democratization" and "computer music," and it would be good to define them. "Democratization" can refer to the making of equipment and ideas more easily available to a wide group of people. It is a problematic term, however. As Susan Fryckberg asked me, when I told her about this, she asked, "Democratization or Commercialisation?" And a case can be made for either term. The question reminds me of Lenin's saying, just after the Russian Revolution, that "communism equals socialism plus electrification!" In our era of business-think dominating nearly everything, one is unhappily tempted to say that in our society "Democratization is commercialisation!" Or vice-versa. That is, the means by which tools become available to many is through mass production and dissemination. And this would even apply in the internet era. However, we immediately run into the problem here of commercialisation meaning plummeting prices on electronic equipment and/or commercialisation as in "commercial music," where big companies determine what music is sold on the basis of what they've already sold. The answer to the latter is that it is quite possible that people ("the" people?) will always make unexpected musics with whatever tools they find, so that commercialised musical tools can very well be used for non-commercial and intentionally un-commercial musics. Almost every musical tool has the potential for making revolutionary music, (in either the political, the personal, or the aesthetic sense) depending on who uses it and how. And in answer to the earlier part of this statement, one has to consider the issue of accessibility. This has a number of aspects, two of which are economic affordability and ease-of-learning. For example, and I say this with no criticism implied – Csound is a free tool. Anyone with a computer and an internet connection can get it. So it's very economically accessible. However, it has a very steep learning curve, pretty much requires specialized training from an

expert, and the style of thinking required to get the most out of it reduces its usefulness to a lot of people. So in the ease-of-learning scale, it doesn't do so well. As a tool, it's free, and it can do anything, but the number of people that will end up working with it will be far less than its potential audience. On the other hand, Abelton Live is designed by musicians working in one particular area of music to do what they want. It's moderately, but not outrageously pricey, and people interested in making the kind of music it does best can learn it fairly quickly. But it is limited. If I want to have synced loops of bass, guitar and drum riffs, I want them in 7 different tempi which are all accelerating and decelerating like crazy, AND I want all 8 bass riffs at once, along with all 7 guitar riffs, and all microtonally tuned, etc. Only with a lot of work could one make Ableton do this, and there are other softwares out there, which can go beyond the capabilities of Live and which would be more efficient to use for my imagined project. So on the ease-of-use scale, Ableton is great; on the affordability scale, it's ok, but on my imagined versatility scale, it's somewhere in the lower realms of the middle.

There is, of course, an answer to the affordability problem, but it's illegal. For several years, I lived in Wollongong, south of Sydney. Wollongong is one of the poorest medium-sized cities in the country. I taught audio engineering at Wollongong TAFE. For our overseas visitors, TAFE – technical and further education – is what Australia calls its technical education colleges. Most of my students were very poor. I thought that training them to make and record music using systems that they would never be able to afford once they left us was probably a mistake. So I spent a lot of time researching software that would be free, or very cheap, that they could use. It was a very valuable search. A lot of people shared my concerns. However, what I found was that my poverty stricken students had usually loaded up their mother's work laptop with $20,000 in pirated software. I couldn't mention a bit of high-end software without someone saying, proudly, "Oh, yeah, I've got that." Whether they actually used it or not, or understood it, was another matter. Similarly, last year in Bendigo, one of the places I currently teach, I mentioned AudioMulch to the students and one student, in a burst of enthusiasm said, "There's a dozen places on the internet where you can get pirated versions of that! Ross Bencina must be so proud, seeing that!" I pointed out, as gently as I could, that Ross was not proud of that, because he had hoped to make some portion of his living off the software. The cost of the software, $189 AUD, was well beyond my student's means, he said. At the same time, he dropped $2000 on a new computer so that he could play games on it. Pirated, of course. In my consideration of affordability, I'm not going to include piracy, but I will recognize its prevalence.

Second term to consider is “computer music.” What is it? What does the term “computer music” mean, socially, sonically, etc? Here’s where we get into a bit of autobiography. I’ve watched the term change meanings ever since the 1960s. Let’s go into our Waybac machine, or Tardis, depending on which tv shows you watched as a kid. In 1967, I entered the State University of New York at Albany. They soon acquired a very large Moog system designed by Joel Chadabe, which had a digital device on it, made by Bob Moog, which allowed various kinds of synchronizations and rhythmic triggerings of things. The university also had a computer centre, where people did projects involving piles of punchcards processed in batch mode. I wasn’t attracted to the computer courses, but was immediately attracted to the Moog. On the other hand, two of my fellow students, Randy Cohen and Rich Gold, immediately began working at the computer centre, submitting their piles of punchcards and waiting long periods for their results. I remember in particular, Randy wrote a program to produce experimental poetry. I was absolutely thrilled with his results, playing with sense and nonsense in a way that I thought was very clever. Randy, on the other hand, who was soon to embark on a career as a comedy writer, thought that the amount of labour required to get results that only a few weirdos like me would dig, was too great. So for my earliest work, I felt there was a divide between “electronic musicians” and “computer artists,” and I was, for the moment at least, on the “electronic musician” side of things. In 1971, I went to the University of California, San Diego, and soon became involved with the Centre for Music Experiment. This was a facility which had both analogue and digital music labs, as well as projects involving dance, multimedia, video and performance art. There was a PDP-11 lovingly tended over by several of my friends. Ed Kobrin was there at the time with his Hybrid IV system, which had a small computer generating control voltages for analogue modules. I ran a small lab which had a Serge synthesizer, a John Roy/Joel Chadabe designed Daisy system (a very interesting random information generator), and some analogue modules designed by another of the fellows Bruce Rittenbach. As well, we could take control voltages from the output of the PDP-11. My own work still involved using “devices with knobs,” the world of “lines of code” was still opaque to me, although I did work on several projects where other people generated control signals with “lines of code” while I adjusted the “devices with knobs.” There was also a social divide I noticed. While I and my singer and cellist friends could hardly wait for the day to be over to head down to Black’s Beach, our computer friends would be continuing to work, usually far into the night, on their code. There was a certain necessary obsessiveness involved with working with computers at that time which distinguished “real computer musicians” from the rest of “us.”

Of course, we acknowledge that the distinction is also faintly ridiculous, smacking as it does of those old silly arguments about “real men” or its non-sexist alternative, the “authentically self-realised person.”

My interests in making technology more accessible were already active at this time. From SUNY Albany friends Rich Gold and Randy Cohen, then doing post-graduate studies at California Institute of the Arts, I learned about Serge Tcherepnin and his "People's Synthesizer Project." The idea was to have a synthesizer kit for about $700 that people could assemble as a collective. Affordability, accessibility, and being part of a community were all very appealing things. And, the synthesizer was designed by experimental musicians for experimental musicians. There was a fair amount of what would become known as empowerment in the project as well. Simultaneous with that, for my Masters' project, I began to design a box of electronics that became known as Aardvarks IV. Made of digital circuitry, with hand-made DACS, I described it as "a hard-wired model of a particular computer composing program." My need for knobs – that is, for a device I could physically perform with- was still paramount. My approach to digital accuracy was a bit idiosyncratic. Following Kenneth Gaburo's advice, I used substandard resistors in making the DACS. That way, each of the 16 shift-register feedback random-information generating circuits would produce a different output. Uniqueness and funk were part of my aesthetic. This probably distinguished me from the rest of the guys in the back room at CME. That and the fact that I would rather be at Black's Beach than in the back room.

Computers at the time were very hungry beasts, devouring resources around them. Now that they've totally taken over, they can afford to be more benign, but in those early days, it was a survival of the fittest situation. For example, when I was at UCSD, CME had projects in many different fields. By the time my wife, Catherine Schieve, arrived there in the early 1980s, the multidisciplinary CME was well on the way to becoming exclusively a computer arts centre, and she too, remembers a social divide between the computer people and the rest of the musicians. What also distinguished the "computer guys" from others was the amount of their output. It was still the norm for a computer person to work for months to produce one short piece. For those of us who wanted a lot of output, fast, working exclusively with computers still wasn't the way to go. Eventually, the organization evolved into CRCA, the Centre for Research into Computers and the Arts. A look at its website shows that it once again has a focus on multidisciplinary research, with some quite fascinating projects. (Although in the question period after the lecture, one of the visitors from UCSD informed me that CRCA no longer existed. Another one bites the dust!) Somewhere between the 80s and today, "computer music" became a field that embraced the widest range of aesthetic positions. Just about the only common factor to most of the work at this conference is the use of electricity, and usually, a computer (or digital circuit) of some kind.

In the late 70s and early 80s, things changed. New, tiny computers began appearing and were applied to music making tasks. The New England Digital Synthesizer – not yet evolved into the Synclavier, and the Quasar M-8 – not yet evolved into the Fairlight CMI, both promised much. Both these systems basically hid the computer behind a sort of musician-friendly interface. Simultaneously with that, a whole series of microcomputers, usually in build your own kit form, began to appear. There soon developed a divide in the computer music world between the "mainframe guys" and the "perform it in real-time folks." Georgina Born's "Rationalizing Culture," her study on the sociology of IRCAM in the 1980s, featured a look at how George Lewis, with his microcomputer based work, fared in the mainframe-and-hierarchy-based world of IRCAM.

In 1975, I arrived in Australia. I set up an analogue synthesis and video synthesis studio at La Trobe University in Melbourne. Graham Hair installed a PDP-11 computer and began some computer work with that. I began working with digital chips. Inspired by Stanley Lunetta's example, I made a box, "Aardvarks VII," exclusively out of 4017 counter/divider chips and 4016 gate chips. This was the rawest kind of digital design. The chips were simply soldered into printed back-plane boards. No buffering, no nothing. Just the chips. It was mainly designed to work with just intonation frequencies, and it gave me many more modules to play with. All in real-time. The physical-performance, combinational-module based patching aesthetic was still the paradigm for me. So by this time, 1978-79, I felt I was an electronic musician who was working with digital circuitry, but I still wasn't that rarest of beasts, the "computer musician."

Simultaneously with this, I was also involved with using the lowest of low technology to make music. Ron Nagorcka and I formed a group called Plastic Platypus which made live electronic music with cassette recorders, toys and electronic junk. Some of our setups were very sophisticated, the low-tech and low-fi nature of our tools concealing some very complex systems thinking, but our work came out of an ideological questioning of the nature of high fidelity. While we were also happy to work in institutions which could afford good loudspeakers, etc. we were also aware that the cost of audiophile systems was prohibitive for many people. Since one of our chief reasons for the group was to make work on the most common types of equipment to show that electronic music could be accessible to many, we embraced the sonic quality of the cassette recorder, the tiny loudspeaker swung on a cord, the toy piano or xylophone. As Ron put it eloquently, "the very essence of electronic media is distortion." Technology, of course, would overtake us in the long run, and availability of sound quality to "the masses" became a non-issue by the late 1980s, but our serious

working with the problems and joys of low technology was fun while it lasted.

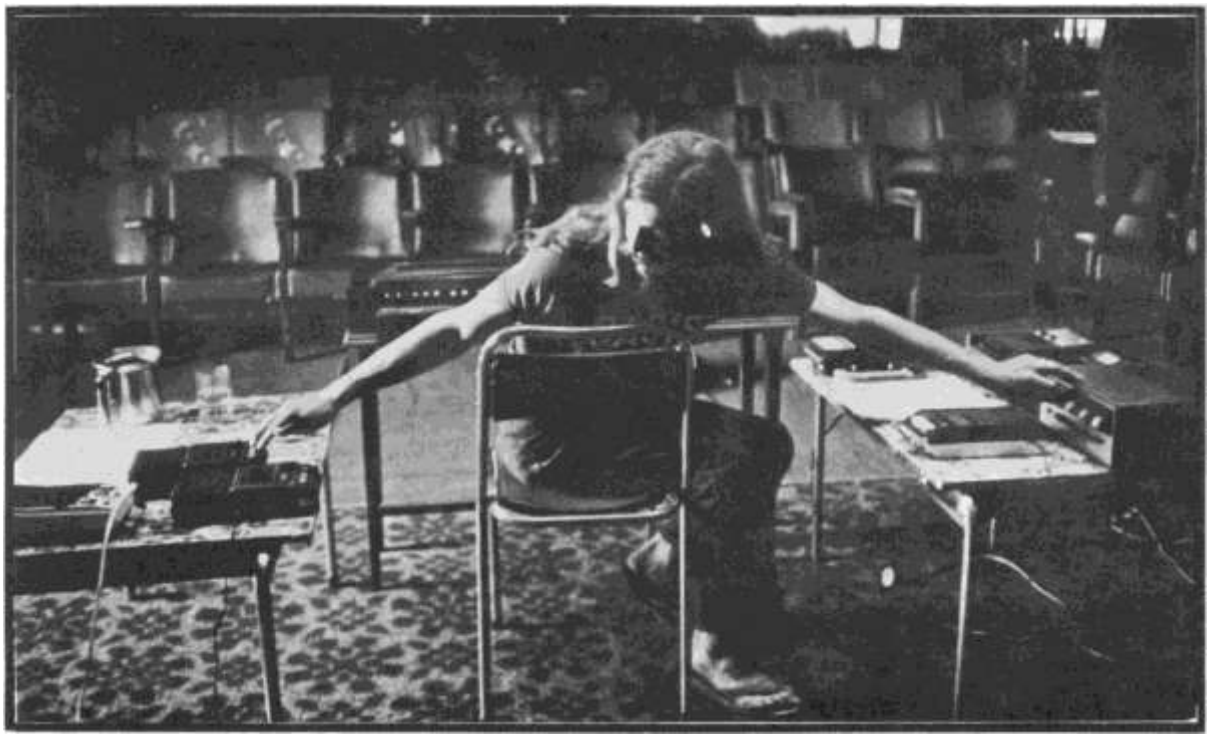

Figure 1: Ron Nagorcka at Clifton Hill Community Music Centre, 1978

In addition to my work with analogue synthesizers, with making my own digital circuits and with my work with low-tech, my own involvement with computers now began in earnest. Joel Chadabe had begun to work with the New England Digital Synthesizer, and with Roger Meyers had developed a program called Play2D to control it. On trips back to the US he kindly lent me his studio, and for the first time, I actually used code to determine musical events. The results occurred in almost real time, so the "knob twiddler" in me was satisfied. Later, back in Australia, in 1979, I worked with the Synclavier at Adelaide University, with an invitation from Tristram Cary, and in 1980 in Melbourne, I begged for access to the Fairlight CMI at the Victorian College of the Arts, and learned the ins and outs of that machine. I got the bug for having my own computer system. George Lewis, in New York had shown me his work with the Rockwell AIM-65, and mentioned the FORTH language to me. A little while later, Serge Tcherepnin gave me a chip that ran FORTH, so I plunged into learning that and built my own highly idiosyncratic interface for it. Then, when I expanded the memory to 32k, I was hot. Real time sound synthesis (using waveforms derived from the code in memory) was now possible. Using the AIM-65 like this, and processing its output with the Serge, I guess I was finally a "computer-musician," but I don't know if I was a "real" one. That is, my approach was still idiosyncratic, and my impulses towards making the equipment more accessible to all, using myself as an example (something a Marxist might cringe at), still seemed, in my own mind at least, to distinguish me from my mythical straw-dog of the elitist, obsessed with perfection and repeatability, mainframe computer operator who still didn't want to go to the beach.

A couple of issues seemed relevant then, and to a degree, still are. One is the question: "How much building from the ground up do you want to do?" I mean, the reason we were doing this building was because the equipment was expensive, and mostly confined to institutions. Today, we have a spectrum which ranges from closed apps which do only one thing well (hopefully) to projects where you basically design your own chips and their implementation. Although these are slightly more extreme examples, that was the spectrum of choice that was available to us back then, as well: home-brew versus off-the shelf, and to what degree?

Another issue was that of ownership. Was one using someone else's tools, whether that was an institution that you were associated with, or a friend's gear that you used while visiting them; or were you using your own tools that you could develop an ongoing relationship with. At this point in my life, I was doing both. Although, encouraged by the example of Harry Partch, who was still alive and living in San Diego, and directly encouraged by my teacher, Kenneth Gaburo, I made the decision that although I would work in institutional facilities if they were available, I would prefer to own my own equipment. Which implied that I was willing to let the scope of my activities be somewhat determined by what I could afford. So an intense exploration of microtonality was possible because of the tools that were cheaply available (or that I had the skills to make), but a serious exploration of multichannel sound was not on the agenda, because I could afford neither the space nor the loudspeakers available for that. Still, I did some work with both unorthodox loudspeakers and sound spatialisation. Here are 2 pictures of Le Grand Ni, a 1978 installation at the Experimental Arts Foundation, Adelaide**.** In more recent years, I've done very little work with multi-channel sound systems, because I haven't been in a situation where either the space or the time to do so was available.

Figure 2: Warren Burt: Le Grand Ni, Experimental Art Foundation Adelaide, 1978. Aardvarks IV (Silver Upright Box), Aardvarks VII (flat panel in front of Aardvarks IV), transducers on metal advertising signs used as loudspeakers.

Figure 3: Le Grand Ni, 1978 – view of metal sign loudspeakers

Here's a link to an excerpt from the 5th movement. This movement is played through regular loudspeakers, not the metal sculpture speakers.
http://www.warrenburt.com/storage/LeGrandNi05Excerpt.mp3

Another reason for owning one's own was the – in my experience at least – tenuous nature of connections with institutions that I've experienced. For many of us, we've devoted several years of development to an institutional-based system, only to then lose our job at that institution. This situation in Australia is getting even worse. Most of the people I know in academia are now only on year-to-year contracts. Even the status of "ongoing staff," a far cry from tenure, but at least something, seems to be less and less available. And as for Teaching Assistants, forget it – they don't exist anymore. Last year, as part of my employment, I had to do some research as to the state of music technology education in Australia. I found that nationwide, in the period from 1999-2012, 19 institutions had either terminated, or radically cut back, their music technology programs. This did not only occur in small institutions, but across the board in major institutions as well. For example, 4 of Australia's leading computer music researchers, David Worrall, Greg Schiemer, Peter McIlwain, and Gath Paine all lost their positions at the institutions which they helped build over a series of many years. Note that we're not talking about people leaving their jobs and another person replacing them, but the positions themselves being eliminated. Given a situation like that, my decades ago decision to "own my own" seems wiser than ever.

Here's a picture which gives an example of the results of my "taking it to the people" in the early 1980s. http://www.sounddesign.unimelb.edu.au/web/biogs/P000347b.htm

http://www.sounddesign.unimelb.edu.au/web/burt/Nat1.mp3

This is a binaural recording - best heard on headphones: Sounds include: 1) Clicking of shrimp 2) Electronic pitches in reply to shrimp 3) Sizzzz of motorboats underwater sound 4) Waves 5) Water gong 6) Wiggle of oscillators tracing amplitude of hydrophone output 7) Debussy's "La Mer" played under water and processed by waves 8) General public sounds 9) Warren Burt talking to the public 10) seagulls.

Figure 4: Taking it to "the people": Warren Burt: Natural Rhythm 1983. Hydrophone, water gongs, Serge, Driscoll and home-brew modules, Gentle Electric Pitch to Voltage, Auratone Loudspeakers. St. Kilda Festival, St. Kilda Pier, Melbourne

In the mid-80s, I switched over to using commercial computers. I had left academia at the end of 1981, so as a freelancer, I needed a cheaper computer. A series of PC-Dos based machines then followed. Along the way, I continued my interest in unusual composing and synthesis systems. US, developed at the Universities of Iowa and Illinois provided a lot of fun for a while. Arun Chandra's Wigout – his reconstruction of Herbert Brun's "Sawdust" also proved a rich resource. I enthusiastically watched my friends in England, motivated by the same "poverty and enthusiasm-for-accessibility ethic" that I had, developed the Composers' Desktop Project, although I didn't actually start working with it for quite a while. I looked up older programs when they were available, such as Gottfried-Michael Koenig's PR1, which proved fruitful for a few pieces in the late 90s. And I found that I soon became involved with software developers, and began beta-testing things for them. John Dunn of Algorithmic Arts has been one of my most constant co-workers for the past 15 years, and I created a number of the tools available in his ArtWonk and MusicWonk programs.

William Burroughs has a very funny anecdote in one of his stories which involves the unfortunate traveller being invited by the Green Nun to “see the wonderful work being done with my patients in the mental ward.” On entering the institution, her demeanour changes. “You must have permission to leave the room at any time.” Etc. And so the years passed. With that knowledge of time passing, we now come to the present, and what we see is a cornucopia of music making devices, programs etc all available at fairly modest cost etc.

At a certain point in the 1980s, computers got smaller, and sprouted knobs and real time abilities, and stopped being the domain of a few people with mainframes and became the domain of just about anyone interested. With the requisite education, social status, etc, or course.

And on that idea of the computer sprouting knobs, I like the interface design of the GRM Tools. Following Pierre Schaeffer’s ideas, they insist that all controls can be externally controlled, there are many possibilities to move smoothly between different settings, and you don’t need to deal with a lot of numbers to use them.

At a certain point in (maybe) the late 90s, the number of oscillators available also became not an issue. The issue of accessibility was now focussed on ways of controlling lots of oscillators. I remember Andy Hunt at York University worked on Midigrid, a system for disabled people to control electronic music systems with the limited mobility they had. And in the past couple of years, the AUMI team – adaptive use musical instruments – have made marvellous strides in developing music control systems for tablet and desktop computers that make access to control even easier.

Also, at a certain point in the 1990s, access to sound quality (the economics of hi-fi) ceased to be an issue. That is, desire and convenience became more of an issue than economics. Prices on equipment have plummeted, more and more power is available for less money. New paradigms of interaction have occurred, such as the touch-screen, and just about anything one could want is now available fairly inexpensively. Faced with this abundance, one can be bewildered, or overwhelmed, or delighted and plunge into working with all the new tools, toys and paradigms that are here.

Here are some pictures that illustrate some of the changes that have occurred in the brief history of “computer music.”

Figure 5: John Cage, Lejaren Hiller and Illiac 2, University of Illinois, 1968 working on HPSCHD.

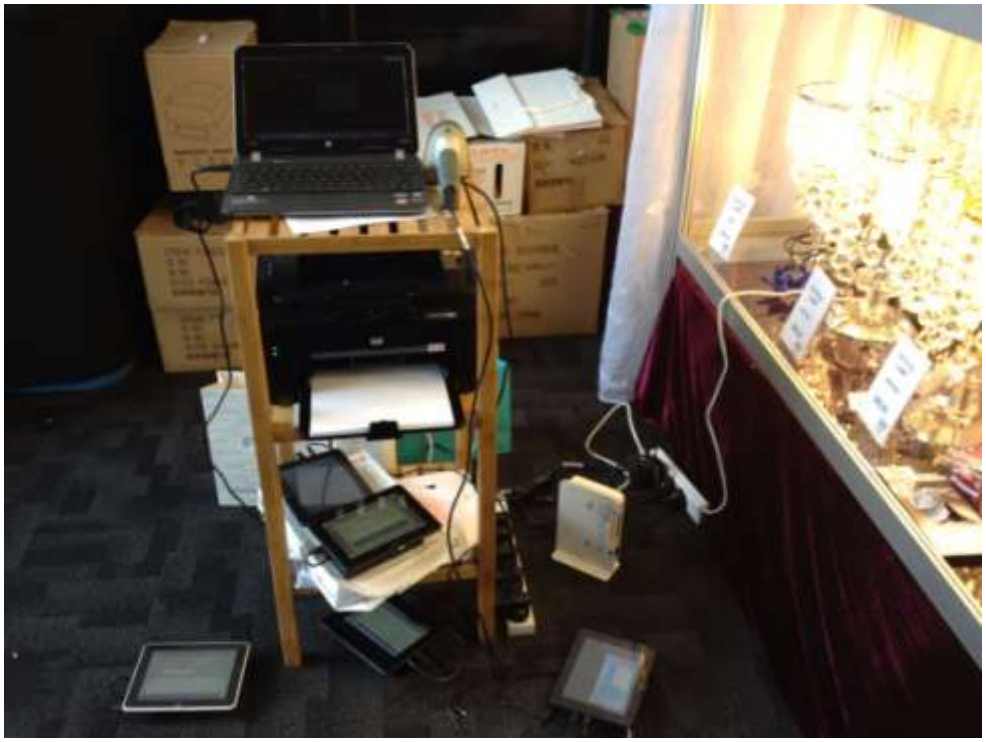

Figure 6: Backstage at a Trade Fair, Melbourne 2013. Each of the Android tablet machines working off the laptop is more powerful than the Illiac 2, and costs many times less. Picture by Catherine Schieve.

Figure 7: Computer setup by Warren Burt for Catherine Schieve's "Experience of Marfa." Astra Concerts, Melbourne June 1-2, 2013. Two laptops and two netbooks controlled by Korg control boxes.

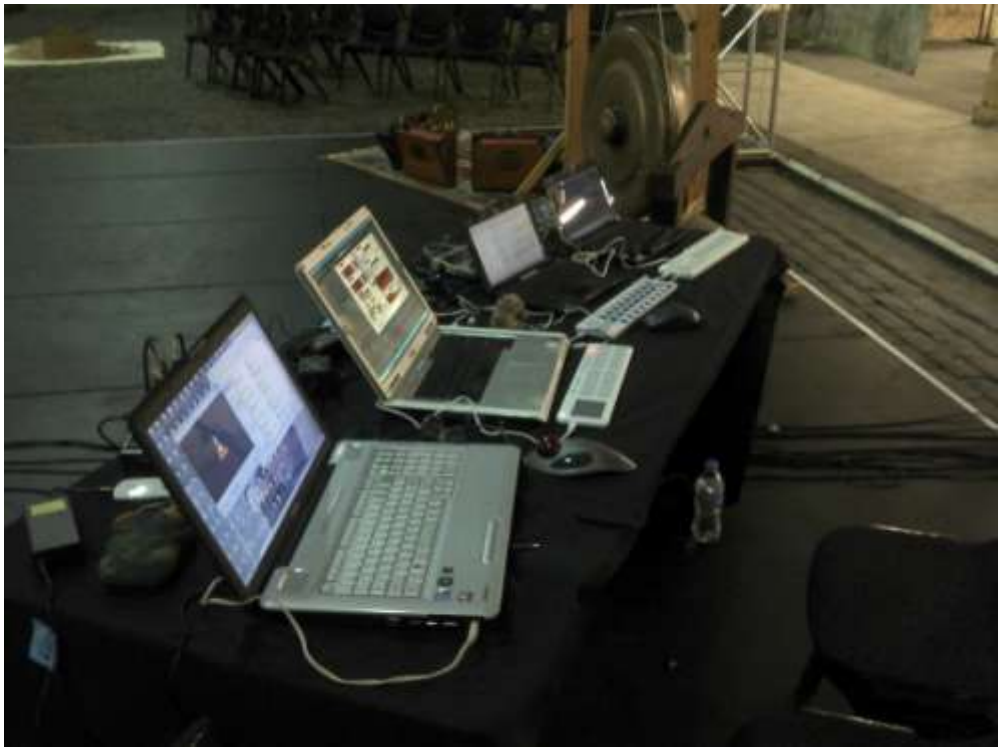

Figure 8: Another view of the computer setup for Experience of Marfa. Note the gong and custom made Sruti Box orchestra beyond the computers.

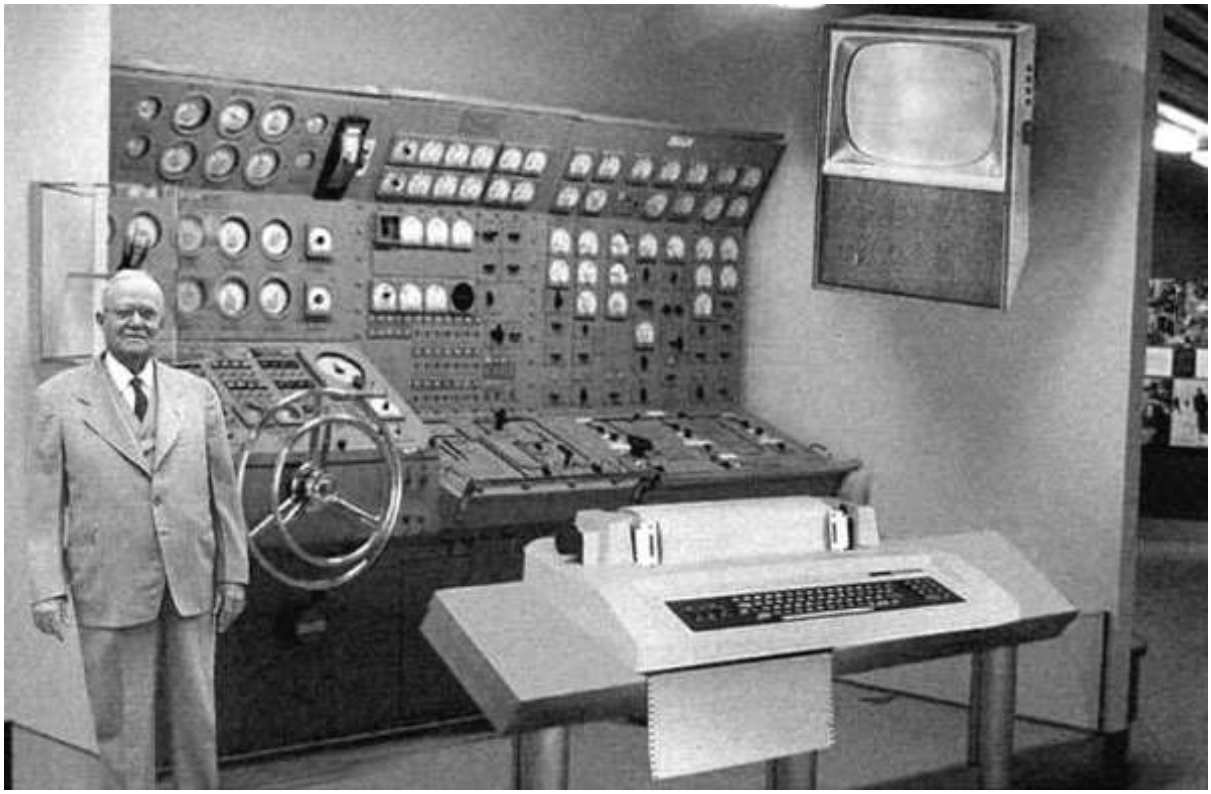

Figure 9: This one's for laughs. This is a picture from 1954 of what the RAND Corporation thought that the average home computer would look like in 2004.

There is one resource, however, which was expensive way back then, and has become even more expensive now. That resource is time. Time to learn the new tools/toys, time to make pieces with the toys, and time to hear other people's work and for others to listen to our work. In Australia, working conditions have deteriorated, and expenses have risen, so that now one works longer hours to have less resources. The days of working 3 days a week to get just enough money to get by, and still have a couple of days to work on one's art, seem to be gone, at least for now. In our totally economics-dominated society, time to do non-economically oriented activities becomes a real luxury. Or, as Kyle Gann expressed it eloquently in his ArtsJournal.com Post-Classic blog for August 24, 2013: "In short, we are all, every one of us, trying to discern what kind of music it might be satisfying, meaningful, and/or socially useful to make in a corporate-controlled oligarchy. The answers are myriad, the pros and cons of each still unproven. We maintain our idealism and do the best we can."

Another factor in the erosion of our time is the expansion of communications media. I don't know about you, but unless I turn off the mobile phone and the email, there is very seldom a period of more than a half-hour where something is not calling for my urgent attention, be it in text, telephone, or email form. This state of constant interruption of the ever decreasing amount of time one has to work is the situation many of us find ourselves in.

My own solution has been to invest in a pair of noise-cancelling headphones, and small, but kind of powerful netbook computers, so that I can work on Victoria's excellent commuter trains. When one is surrounded by 400 other people, and the modem is switched off, and the headphones prevent one from hearing the mobile, then one can get at least an hour, each way, of uninterrupted compositional concentration time. Yet still, I wonder what has been the effect on my music when made in such a contained, tight, hermetic environment. In the past 2 years, I've made 3 CD-length cycles of etudes while on the trains. In one of them, "A Bureaucrat Tells the Truth," from "Cellular Etudes" I combine sophisticated samples and 8 bit crude sounds lovingly reconstructed in the Plogue softsynth, Chipsounds.

http://www.warrenburt.com/storage/Cellular4-ABureaucratTellsTheTruth.mp3

I sent the piece to David Dunn, and his observation was:

"One of the formal issues that came up for me was the idea of sound samples for midi control as found objects (in the same way that any musical instrument is a found object) that carry with them definite cultural constructs (tradition). Most composers usually want a piece to be located within one of these (bourges vs. Stanford vs. cage vs. western orchestra vs. world musics vs. noise music vs. jazz vs. spectral music vs. rinky-dink lo fi diy, etc.). This usually plays out with composers trying to constrain their timbral choices so as to define a singular associative context (genre). In these pieces you let the divergent cultures rub noses until they bleed."

Perhaps my isolation-booth composing environment is making me cram more and more cultures side by side, just as all of us on that train, from so many cultures, are jammed in there side-by side.

So the time issue is more of a problem than ever. One of the reasons for that is the accelerating amount of gear that is being released, which far outstrips my ability to seriously interrogate it.

One of my strategies for composing involves looking at a piece of gear or software and asking, "What are the compositional potentials of this?" Not so much "what was it designed for," but more "how can it be subverted?" Or if that seems too Romantic, maybe asking "What can I do with this that I haven't done before?" And "What does the Deep Structure of this tool imply?" Remembering the early days of electronic music where people like Cage, Grainger and Schaeffer would use equipment clearly designed for other purposes in order to make their music, I find myself in a similar position today. The best new music equipment store I've found in Melbourne is StoreDJ, which has a good selection, good prices and a knowledgeable staff. Where Cage and friends appropriated their gear from science and the military, I now find I'm appropriating some of my resources from the dance-music industry.

A couple of years ago I quipped that there were far too many Japanese post-graduate audio engineering students with far too much time on their hands making far too many interesting free plugins for me to keep up with them all. Now of course, the situation is far worse, or is that better?

A case in point. About 5 or 6 years ago, I read about a new software synthesizer by Rob Papen called Albino. I liked the description of how it combined waveforms, and its filters, and the fact that it could handle Scala files, since one of my chief interests is microtonality. So I bought it, and learned it, and played with it for a bit, and then was distracted by other projects, and it just lay there on my hard drive, unused. Then I read last year that it was being discontinued and would no longer be supported. I then pulled it out, dusted it off, and found that it was indeed lovely. So now that it's obsolete, I've begun using it. In the meanwhile, dozens of other tools have come and gone, some of which I've used, some not. Similarly, I finally became a Composers Desktop Project user in the late 90s. Just the other day, I began investigating the "Texture Pack" group of programs within it. I have vague memories of running through the tutorials for that about a decade ago, but not having them make much of an impact on me. Now I'm finding the "Simple Texture" routine to be very powerful and just what I need for my current project, a realization of John Cage's "Circus On…", only about 15 years after I first saw the routine. Thank goodness there was enough equipment stability for me to get around to using those programs. I can only hope that Windows 8 and the iOS platform, my two new platforms I'm using, will similarly have enough of a shelf-life for me to get around to using tools which might be useful and fun.

Here are links to two current videos, showing current work. The first, "Launching Piece" uses 5 tablet computers – two Android based, two iOS based, and a Windows 8 tablet in Desktop mode. I've just started working with this setup, and it's very nice in that it's getting me out of the "behind the laptop" mode, and into a greater physical engagement while performing. I'm very involved in having what Harry Partch called "the spiritual, corporeal nature of man" being an integral part of my music making. The second "Morning at Princes Pier" uses an iPad processed through a venerable Alesis AirFX to make a series of timbrally-fluid microtonal chords. And speaking of future shock, when I first bought the AirFX in 2000, I remember laughing at its advertising slogans – "The first musical instrument of the 21st century!" and "because now, everything else is just so 20th century!" In both these pieces, new resources are allowing me to finally be getting more physical, once again, in my performing.

http://www.warrenburt.com/journal/2013/6/21/launching-piece-composed-and-performed-by-warren-burt-a-new.html

http://www.warrenburt.com/journal/2013/5/13/concert-at-box-hill-institute-may-9-2013.html

So my quest for low cost, portable, physically engaging performance gear seems to be coming to fruition. Part of what has driven this quest has been the desire for convenience. I don't need to tell you about the tours of Europe with 2 road-trunks full of gear, hauling them over cobblestone streets, etc. The older of you have also been there. The younger ones who never experienced that, you're lucky. But there is a downside to the search of convenience. As the Dead Kennedys said, "Give me convenience or give me death!"

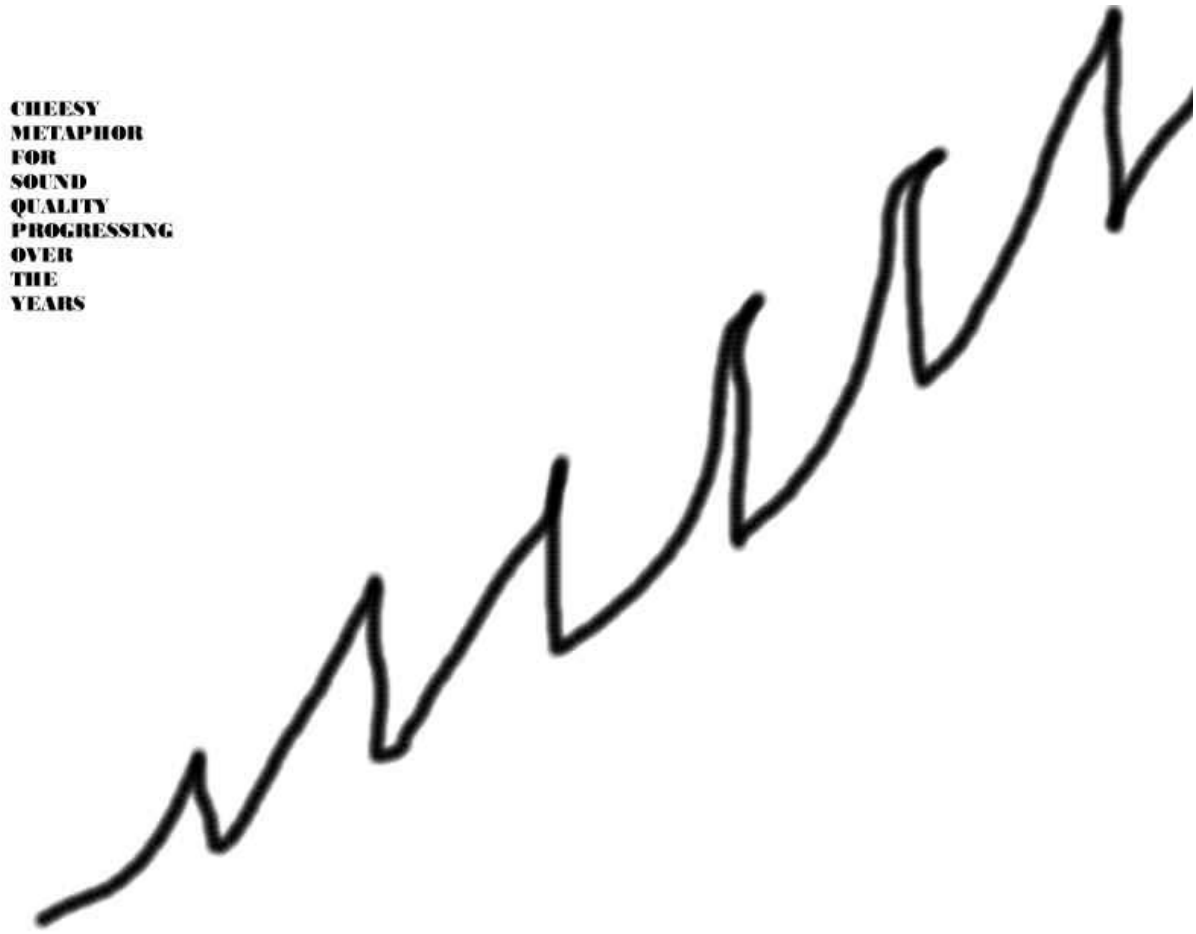

Figure 10: The Evolution of Sound Quality vs. Convenience

Here's a metaphorical chart which I call "the evolution of audio quality." Like most metaphors, it's both sloppy and sloppily drawn. But you'll quickly get the idea. We start off in prehistory with the 78 rpm record. Fidelity gets better and better on it. Along comes magnetic tape. More convenient, but maybe not the same sound quality. But it gets better and better. Along comes the LP. At first, not such good sound quality, but it gets better and better. Then magnetic tape also gets better and better. But along comes the cassette. Not as good sound quality, but it's more convenient. Then cassettes get better and better. But along comes the CD. Not such good sound at first, but eventually, it gets better and better. Then along comes the mp3. Now we can get rid of physical media entirely (except for all those CDrs, hard drives, iPods, etc). Very convenient. But it sounds lousy. But it gets better and better. Ogg, Flac, etcetera. And what's next? In each case,

convenience trumps the desire for fine sound quality. And don't forget earbuds. Or maybe that should be, *please* forget earbuds. This is probably not the ideological issue of accessibility that I worried about in the 70s. This is probably just laziness.

I have a friend who is an audiophile. He has a wonderful sound system that he spends a lot of time listening to. I proposed to him the idea that being an audiophile was an elitist activity, both in terms of the money his equipment cost, and in terms of the fact that he actually could afford the time to listen to things in that careful manner. I asked him if he could design an audiophile sound system that the working class could afford – that is, could he design a proletarian audiophile sound system. His reply was great: "For who? The people who spend $2000 on flat screen TVs?" I had to admit that he was right. The "working class" will spend a lot of money on equipment that will provide entertainment they want. And I decided that just as Andre Malraux had said that he thought that Marxism was a will to *feel*, to feel proletarian, so too being an audiophile was also a will to feel, a will to feel that high sound quality and the ability to put time aside to use that equipment, was worth it.

SO: We've reached a kind of technological music utopia, and we're daily surrounded by ideas, gear that implies ideas, and gear that can realise ideas – all at prices that a poor person – or at least lower-middle class teacher even one who is going backwards economically – can afford. That's lovely. What is not lovely is that we didn't realise that when we reached the future, there would be so little place in it for us. For what hasn't changed for us, since the 60s, is where we are – what our position is in relation to the larger world of music. As Ben Boretz phrased it, so eloquently, we're "the leading edge of a vanishing act." We're a fringe activity to an economic juggernaut. And the juggernaut uses our findings, and usually doesn't acknowledge them.

Continually, the words we use to describe ourselves have been taken up by different styles. I've seen "new music," "experimental music," "electronic music" "minimal music" and the list goes on and on, used by one pop genre or another over the past decades with no acknowledgement of where those terms came from. In fact, these days, when my students talk about "contemporary music" they don't mean us. They mean the pop music they are currently interested. We, and our work, have continually been "undefined" by industry, popular culture and the media.

For example, the Guardian, an admirable paper in most other aspects, has a substantial arts section. They review a lot of contemporary art music on their "Classical Music" page, and Tom Service has done a marvellous job of writing about 50 living composers in his blog last year. But the overwhelming amount of music written about is for acoustic instruments. But, they do have a page to review "Electronic Music." And what is reviewed there is: dance music. Not a mention of, for example, Trevor Wishart.

Similarly, the website "Classics On-Line" which sells downloads, has a lot of (what we would call) contemporary music on its website. And it's even the "CD of the week," about 1 week out of 3. Again, all acoustic. Trevor's CDs are found on specialist websites, not here.

And again, in terms of our terms being used to describe not us, there's the British magazine, "Computer Music." Teaching in a system which has not a lot of money for software, I'm really grateful to them for providing some really good free software for me to teach my students with. But their idea of "Computer Music" is an 18 year old British boy in his bedroom, making, of course, dance music. Even "Electronic Musician," which used to provide some acknowledgement of our activities, now is mostly a magazine for middle-aged amateur recording enthusiasts, who want to duplicate the production sound they've heard on their latest favourite pop release. I don't think I'll be reading about Trev in the pages of either magazine very soon.

Figure 11: Computer Music magazine. Enough said.

(Parenthetically, I was in our library the other day and opened up the latest issue of Computer Music Journal. At random, I'd opened to an article full of equations. My eyes glazed over. Total incomprehension. Total relief. "I'm home, ma.")

Back in the mid-90s, Tall Poppies, probably Australia's leading instrumental new music label brought out my computer music CD, "39 Dissonant Etudes." In the catalogue copy advertising the CD was the phrase "Warren Burt is a computer boffin." By that time I guess I was not only a real computer musician, I was also a boffin. And the owner of the label felt that that kind of cutesy insult was the best way to sell CDs of my music.

"Soundbytes Magazine" is a little web publication that I occasionally contribute to, with reviews of software or books. The editor, Dave Baer, has been involved in computers since the 60s. He was a technician on the Illiac IV, then moved to the UCSD computer centre. He remembers attending the performance at Illinois of Cage and Hiller's HPSCHD. He's also a very good singer, appearing in the chorus of amateur opera productions. So he's not a stranger to our work. For the last issue of Soundbytes, I suggested that he do an interview with me, since I was using computers in what I thought were some pretty interesting ways. His reply floored me – he'd be happy to do that, but we'd probably have to do a substantial introduction to place my work in context, since *what I was doing was so far removed from the interests of the mainstream computer music maker!* By this he didn't mean, for example, that my note-oriented microtonal work was far removed from, let's say, spectromorphological acousmatic work. No, he meant that my work, and all the other things we do, was far removed from the amateur dance music composer in their bedroom. So, in popular consciousness, even the term we use to describe ourselves – "computer musician" – doesn't apply to us anymore. Once again, popular consciousness has robbed us of our identity. Maybe that's the price you pay for being on the bleeding edge.

Of course, when you make a tool available to "everyone," it's more than likely that they'll use it to make something they want to make, and not necessarily what you envisioned the tool would be used for. This has been around for a long time. I can tell a funny story on myself in this regard. In the early 70s in San Diego, I was a member of a group called "Fatty Acid" which played the popular classics badly. Sort of a conceptual art musicological comedy schtick, with serious Stravinskyan neo-classical overtones – or maybe serious Stravinskyan spectromorphological pretentions. Then, in 1980 I encountered the Fairlight CMI. This was heaven. Now I could make my "incompetence music" by myself, without having to return to San Diego from Melbourne to play with my buddies. I was completely thrilled by this. When I met Peter Vogel and Kim Ryrie, the developers of the Fairlight, I couldn't wait to play them my "bad amateur blues ensemble" music. They were, quite naturally, less than impressed. What I thought was a natural, and exciting use of their machine, was for them, just plain weird. Stevie Wonder I was not. I remember Alvin Curran, way back when, telling me that I had to be careful who I played some of my more off-the-wall stuff to. Alvin, you were right. They were not, to my chagrin, my ideal target audience.

http://www.warrenburt.com/storage/Cellular4-ABureaucratTellsTheTruth.mp3

So the pressure on us weirdos to conform is still there, and still intense. Let's go back in time and listen to Mao ZeDong, in 1942, at the Yenan Forum on Literature and Art. The language here is doctrinaire Marxism, but substituting terms will make it seem extremely contemporary, just from the other side.

“The first problem is: literature and art for whom? This problem was solved long ago by Marxists, especially by Lenin. As far back as 1905 Lenin pointed out emphatically that our literature and art should “serve…..the millions and tens of millions of working people”….. Having settled the problem of whom to serve, we come to the next problem, how to serve. To put it in the words of some of our comrades: should we devote ourselves to raising standards, or should we devote ourselves to popularization? In the past, some comrades, to a certain or even serious extent, belittled and neglected popularization…We must popularize only what is needed and can be readily accepted by the workers, peasants and soldiers themselves.”

Substitute “target audience” for “the workers, peasants and soldiers” and “making a saleable product” for “popularization and it becomes pretty clear that whether the system is capitalist or communinst, they want us all to dance to their tune.

In the 1970s, Cornelius Cardew, from his Marxist-Leninist perspective, exhorted us to “shuffle our feet over to the side of the people, and provide music which serves their struggle.”

Today, the dance-music scene exhorts us to (Melbourne) shuffle our feet over to the side of the people, and provide music which serves their struggle to groove.

Today, the film-music industry exhorts us to shuffle our feet over to the side of the industry, and provide music which serves their narratives.

Today, the game-music industry exhorts us to shuffle our feet over to the side of the industry, and provide music and algorithms which serves as a target for their target audience.

Well, maybe we don’t want to shuffle. Maybe we want to remain what Kenneth Gaburo called “Irrelevant Musicians.” Maybe we want to be arrogant enough to make a music which demands its own supply and supplies its own demands. I’m not sure I agree with Gaburo when he said, “If the world at large will one day awaken, it will need something to awaken to.” I think the world at large will probably one day provide the things it needs for its own awakening. But I understand where Gaburo is coming from. For in opposition to all the commodity-oriented thinking, some of us think of music as a gift, not a sales price-point. An interesting example of this was a 1983-84 piece, “Three Part Inventions.” In this, I used the 3 clocks in the Aim-65 microcomputer as oscillators, counting down from the 1 Mhz clock to provide just-intonation pitches. These were processed by my Serge Analogue Synthesizer. I programmed the ASCII keyboard of the Aim to act as a musical keyboard. I then performed on that keyboard, changing just-intonation modes from time to time. I recorded my improvisations on cassette. I made 12 different half-hour performances, one per morning over a period of two weeks. I then mailed the 12 unique copies, one each to 12 different friends, as gifts. Eventually, I recorded another improvisation to reel-to-reel tape to be part of the larger piece,

"Aardvarks IX," but each of those 12 friends got a unique, one of a kind gift. Today, I happily put a lot of my new music on my website for free download as it is completed. But the individual nature of those gifts seems to me to be more meaningful than the anonymous mass world of the internet.

So we were an opposition years ago, and we're still an opposition now. Somewhere in the past few months I read a statement which appalled me. It was something like, "Every deeply held aesthetic position now becomes a just another preset in the composing arsenal." While I had, in the past, reflected a bit ironically on the fact that, for example, FM and the Karplus-Strong algorithm, things which hard working people had devoted a substantial part of their lives to, were now just timbral options in a softsynth, I had sort of expected that. But this statement was implying that compositional ideas were now just so many recyclable resources, more grist for the great post-modern (or alter-modern to quote current British critics) sausage machine. True enough maybe, but disturbing nonetheless.

Have we really arrived at a situation where tools are democratized then? Or have only a limited amount of resources, those which won't rock the 4/4 boat, been offered by "the industry" to us. I think the answer is both. The resources are there for people to use. It's up to us to keep reminding people of what other potentials there are to be explored, and how the new technological utopia can provide them with the means for exploration and even self-transformation. To do that, we probably have to struggle against the media which wants to disavow our inconvenient truths, and inconvenient existences, but that struggle is worth it, in that we will be one of several groups of people who will keep alternative and transformational modes of thought alive, and available to those with curiosity and the desire to explore.

What's left to us? What's left is work. Work which expands consciousness; work which provides the opportunity for changes in perception; work which attempts to bring about changes in society, or provides a model for the kind of society we want to live in; work which re-affirms our identity as a unique and valuable part of our society. Work which we need to get back to. As the Teen Age Mutant Ninja Turtles said, or was it Maxwell Smart, or Arnold Schoenberg? – "It's a dirty job, but someone has to do it."

http://www.warrenburt.com/storage/Nightshade19-TomatoMutedSteinwayPiano.mp3

(Warren Burt: Nightshade Etudes 2012-2013

#19 – Tomato Muted Steinway

Microtonal scale based on Erv Wilson's "Moment of Symmetry" work

Timbre – muted piano from Pianoteq Physical Modeling synth

DNA protein patterns from NIH gene data bank

DNA composing software – ArtWonk by Algorithmic Arts

Composing studio: V/Line regional commuter trains, Victoria

- Protein patterns from tomato DNA are applied to pitch, dynamics, rhythm and played in a polyrhythmic canon on a virtual Steinway piano with mutes.)