
Some thoughts on Structure and Necessity

By Warren Burt

Sometime during my undergraduate years (1967-71) at SUNY Albany, I remember I wrote a piece without really knowing what I was doing. I used



very strict structures to construct the piece, and lots and lots of number patterns to put the piece together. To my surprise, the piece was a hit. That is, I liked it, the performers liked it, and the audience liked it. It had a really solid feeling to it, even though, when I wrote it, I didn't have a clue what it would sound like when it was played. Maybe I just got lucky, but the lesson I took away from that piece (and I can no longer even remember which piece it was), was that a solid structure made a piece sound coherent and tight, even if the composer wasn't - coherent and tight, that is.

Fast forward now to around 1972 or 1973, at UCSD. I was a student in Kenneth Gaburo's Compositional Linguistics seminar. He gave us a sheet which listed definitions for a large number of techniques of English language poetry. Then he asked us to write a poem in which each of these techniques was consciously used at least once. We were to read these poems to the class, and then to show where and how we had used the techniques. We were also to bring in a love poem or other poem that we had written totally intuitively in high school. When the time to perform the assignments came, we all read the structural poems to the class, and showed how we had made them. Then we all sat back to giggle at each other's maudlin high-school inanities. After each poem, Kenneth proceeded to astonish us with a real-time analysis of each high-school poem, showing us structures in these poems that none of us had dreamed were there. The lesson, he said, was that whether you had put structure in a piece consciously or not, it would always be there, and so there was nothing to be afraid of in either being conscious or unconscious in your

use of structure. I was impressed with this point, but I don't think it really sank in until a number of years later. But in our lessons, Kenneth always made the point that no matter what structures we were consciously using, if we were clear enough in what we were doing, the sub-conscious would usually be able to do what it wanted in a piece as well. Perhaps in the undergraduate piece described above, my sub-conscious was composing better than I realized at the time.

About this time, I also began getting seriously interested in tuning. Harry Partch was in San Diego, and though I was unlucky enough never to meet him, many of my friends and colleagues knew him, and were in his ensemble, so his influence in that environment was enormous. The number patterns of just intonation and my work with live electronics fit together beautifully, so much so that by 1978 (by which time I was living in Melbourne), with the assistance of Julian Driscoll, I built "Aardvarks VII", a box of CMOS dividers and gates which I used to assemble just intonation pitch and rhythm complexes based on the number patterns it was possible to get by patching together many layers of those rudimentary chips. For example, if one had an oscillator at a very high pitch, and used that to drive two of the counters, one dividing the frequency by 4, and the other by 5, the result would be an interval of 4:5, a just major third. If the dividing frequency of the second divider were then changed to 6, the resulting interval would be an interval of 4:6, a just perfect fifth. By arranging sequences which changed the frequency of the dividers, and then setting up other sequences which changed the frequency of other dividers, and then using the sequences from the first dividers to drive the sequences of the other dividers, melodic and rhythmic patterns of great complexity and symmetry could be set up. I have notebooks full of the patterns I worked out which these dividers and gates could produce. Depending on the patterns chosen, the results could be extremely consonant and pulse oriented, or fairly dissonant and disjunct. Since this was the heyday of minimalism, most of the patterns I chose (such as in my live electronic piece "Le Grand Ni") were fairly melodic, consonant and pulsing. These patterns were

then processed through other analog electronics. They would usually be filtered and panned around the room at great speed, giving sounds that might otherwise seem quite formalistic and severe a quite physical character. Consciously, I had absorbed the numerical lessons of just intonation theory, but the really important part of Partch's work - his insistence on the physicality and corporeality of sound and performance - was probably only resonating with me subconsciously at this time. That is, once I'd made my beautiful number patterns, and heard what they sounded like, I usually worked "by ear" to make them as effective and physically exciting as possible.

Working with just intonation like this was great ear and brain training. I must have made up or found thousands of number patterns, and then applied them to pitch, rhythm, timbre and larger-scale structures in order to hear what they sounded like when realized as sound. Along the way, I also became interested in the various equal temperaments, and experimented with them as well. To my surprise, none of the psychological effects predicted by many just intonation theorists happened to me. That is, while just intonation harmonies sounded "smoother" to me than many equal tempered harmonies, they didn't sound "better", or more "musical", or more "necessary", just different. Over a period of several years, I learned to hear the different nuances of many different ways of tuning. Each one sounded unique to me - or had family relationships to other tunings and scales which were non-prejudicial. Eventually, I found that I could hear beauties in just about any sound complex. I found that I had developed the ability to listen seriously to just about any sound output by anyone, and find interesting and rewarding things in it. This ability was very useful to me in the late 1980s and early 1990s, when I was reviewing recordings for "Experimental Musical Instruments." Every time Bart Hopkin, the editor, got a particularly challenging piece of anarchist sound-making, he would usually send it to me, and I nearly always found something interesting in the recordings I reviewed.

I also began improvising more and more from the mid 1980s on, and also reviewing recordings

of free improvisation. In the performing work, sometimes I would plan things out, and sometimes I would just go out cold, allowing impulse to shape what I was doing. Then, after the performance, I would sometimes listen to what I had done dozens of times, in order to hear just what it was that I had been doing while in that "performative - meditative" improvisational state. Oftentimes, the results sounded very well organized and planned, even though I knew the works were created spontaneously.

Last Monday morning (22 October 2001) while seated in my local laundromat, (Alec's Laundry of Melville Road, Brunswick - Australia's largest - these days I content myself with modest superlatives) I began fooling around with constructing Moment of Symmetry scales in 23-tone equal temperament, one of my current favourite scales. I could write a whole paper on Moment of Symmetry scales (so called by Ervin Wilson and John Chalmers, who in the mid-1970s were the first to recognize and formalize the properties of these scales), but all I'll say here is that they are scales constructed using only 2 intervals which in some sense mirror the structural properties of Pythagorean diatonic and pentatonic scales. What I noticed as I started this work was the absolutely pleasant trance-state I went into while working out these number patterns. I immediately recalled that achieving this state was one of my great pleasures in composing. Whether the results were applied to sound, or visual or verbal processes, the working out of patterns in this way was something that gave me great pleasure, mainly because of the quasi-meditative state that I entered when I worked with numbers in this way. (And by the way, some of the scales I worked out sounded pretty good. A couple even look like they'll have fairly rich harmonic possibilities.).

The pleasure obtained from this numerical working out is very different from the pleasure I get from performing/improvising in real time, but for me, both pleasures (as well as the pleasure derived from hearing other peoples' work) are necessary to keep me interested in music. Hell, they're also both necessary to keep me happy and well balanced, if not even just plain sane.

But what I've noticed is that as I get older, I no longer feel some sort of psychic or structural or historical mandate to use numerical structures in my pieces. If I want to explore a serious structural idea, I do, but if I want to explore something else, I do that also. Apart from exploring the unique attributes of any given material or structure, there seems to be no particularly urgent or meaningful reason to use one kind of structure over any other kind now. Since I can see/hear/feel structure in anything, and since, by choosing to give exact attention to something, I can make it interesting and beautiful for myself, all creative choices become simple options for me, with none having any particular monopoly on their ability to create "good works." Structuring becomes a pleasant option - and a useful tool, but an option nonetheless.

What does seem necessary to me is some sort of relationship with the body. Indeed, even the most dematerialized virtual works still are perceived by a body. And for the foreseeable future, they will continue to be. So it seems to me foolish to ignore this basic substrate of perception without which we are unable to perceive - the body. For me, this has meant incorporating the idea of live theatre into almost everything I do. Even such a simple act as playing a piano is now seen by me as an act of physical theatre. I saw a concert recently where the pianist played very difficult works, communicating the energy and nuance of the notes extremely well. Yet, I still felt that because of the way they walked on stage, radiating hostility, and then proceeded with their body language to convey an impression of extreme discomfort, that this was a bad musical performance. After working with dancers for years, (and occasionally even as a dancer), a consciousness of the primacy of the body has finally filtered through. (Are you listening, over there in the after-life, Harry and Kenneth? I finally learned...)

Over the years I've read many statements about how one sort of structure or another was "the" way to go. And as I look at historical works, in almost every case, I see that "the" way worked for some works, and not for others. For example, during the serialist hegemony of

the 1950s, there was still plenty of good tonal music being written, even in the European high-art music scene, and in the 1980s, the heyday of post-modernism, there was still plenty of fine, engaging serial music being produced. So who was right? Which polemicist had any monopoly on knowledge or pleasure?

It may be, in the end, that immediate pleasure is all we have. If so, I would like my pleasures to be as diverse as possible. Hence, the idea of learning to perceive many different kinds of art in many different ways. Certainly, nearly all ideas that art can have some sort of transformative or ennobling effects on either its creators, its performers or its perceivers have been so thoroughly attacked by cultural theorists that it would be the rare and brave artist these days that would timidly advance the idea that artworks might be ultimately useful in any sort of long-term sense to society in general or some group in particular. By being reduced to just another cog in the commercial, or sociological, or critico-theoretical, or ideological, or historico-curatorial machine, the artist has been thoroughly brought down to earth, and stripped on any illusions that what they are doing might be of any long-term usefulness. And perhaps this excoriation is a good thing. For by having one's motivations to creative activity revealed one by one as mere self-serving illusions, one is forced to question why one continues such activity.

(Aside the first: this is being said, by the way, from an Australian perspective - perhaps in European society, where the psychological and financial support structures for the arts have not decayed to quite the extent they have in Australia, things may seem different)

(Aside the second: I had a Doctor once who was convinced that all creative people were manic depressives - I decided to get another Doctor at that point - trying to educate him was just too much work, I figured, especially when I would have to PAY him to teach him a lesson or two...)

(Aside the third: The possibly paranoid tone of the preceding may be a result of seeing too many structural similarities (we are dealing with structure here, right?) between the writings of

Comrade Zhdanov and many of the critics and culture theorists I've read. (For those of you who don't know him, Zhdanov was Stalin's culture minister - a man not noted for his jolliness or the catholicity of his tastes...)

In my case, the reasons for creative work would be several. 1) I need it to keep myself happy, healthy, and in some sense, spiritually fulfilled. 2) Occasionally, a friend enjoys themselves when I share what I'm doing with them. 3) This sort of intimate one-on-one sharing, (for whatever reasons that others might label as ideologically backwards and psychologically pathetic) is something that I value greatly. I like making things, and I like sharing them with friends. I hope that in the light of contemporary critical theory, we are still allowed those simple pleasures. If we are, then I would like to more boldly propose that there might be a history of us sorts who want to share things with each other, and indeed that today, there might be a community of like-minded people who might actually constitute a society, or a sub-grouping within the larger society that might actually be a kind of network for sharing and preserving knowledges and feelings that might not be allowed survival in any of the commercial, critical and academic worlds out there, and that further, these knowledges and feelings might actually BE transformative, or at least have the potential to be so.

One of the most pleasant creative experiences I've had recently was when I was travelling through Europe in June and July 2001, en route to Australia from the USA. I stopped and visited Paul and Helene Panhuysen for what I thought would be a 2 or 3 day stay. While there, Paul showed me his books "Number Made Visible" and "The Calcucos", which described his various systemically produced drawings. In "Number Made Visible", various line drawings are made by connecting the points on a Franklin magic square in various kinds of numerical sequences. The structures in the drawings progress from number pattern to number pattern in very interesting and absorbing ways. I suggested to Paul that using some graphics to sound conversion software (we used Rasmus

Ekman's freeware "Coagula Light"), we could make sound realizations of his drawings. He then suggested that we could layer a number of these realizations, and by rotating the drawings through a series of angles, we could produce some pretty complex timbres and textures. Well, one thing led to another, and at the end of that week, when I left (travel plans being changed to accomodate our newfound enthusiasm), we had a 48 minute piece completed. Then, while travelling, I continued on my own, and using Paul's "Calcucos" kit, produced a 24 minute piece on my laptop - mostly working while on trains. So what was it? Why, while travelling, did I sit down with a friend and work really hard to produce these works? Well, besides the fact that I think Paul is a wonderful and important artistic thinker and maker, one whom I've wanted to work with for years, this project was just plain fun. The joy of exploring, and of bouncing ideas together with Paul was irresistible. And Paul's freedom in handling his structures - his intuitions as to which kinds of structures to place where - producing the most engrossing sonic results, is marvellous. Hopefully, we'll find contexts in which we can share this work with other friends.

In the end, I have to state that I do feel that there is more at stake with our creativity than simple immediate pleasure. I do think that what we're doing here will eventually be of some greater use to some other person or group of people. And if not what we individually did, then the work of people who did work similar to ours (our friends?) might be the stuff that somehow, somewhere makes a difference to someone. So yes, with or without consciously imposed structure - within an activity, or imposed on an activity, or perceived in an activity - I feel our work matters. In these times of dark and nightmarish events, and repressive social structures which annihilate the individual with great facility, I feel that by keeping these kinds of ideas and discussions alive, we are contributing to that collection of ideas which make us fully human, and which somewhere, somehow, might eventually be seen by some people as models for other, more open ways of being.

