Contemporary Music Review
Vol. 25, No. 1/2, February/April 2006, pp. 107 – 117

Routledge
Taylor & Francis Group

Fetish: Bent Leather's Palpable, Visceral Instruments and Grainger

Stuart Favilla & Joanne Cannon

This article presents Bent Leather Band's gestural embodiment of Percy Grainger's Free Music language and experiments. The authors present their perspectives on instrument-making within the paradigm of live ensemble improvisation. The article investigates the nature of playability and expert control. It considers that these elements should be in governance with a musical language. It examines the visceral and palpable aspects of the instrument purpose-built for virtuosic Free Music play. This is presented through the ensemble evolution of the Bent Leather Band and the adaptation of our instruments to Percy Grainger's remarkable sonic language: 'beyond the constraints of conventional pitch and rhythm'.

Keywords: Fetish; Control Interface; Playable; Free Music; Expert Control

Fetish

Joanne Cannon and I are improvising musicians that make and play our own electronic instruments. We are based in Melbourne, Australia. One of our ensemble projects has worked towards the development of new ensemble music, exploring free pitch and beat-less rhythms. Specific elements of this language, including tonal glides and microtonal glissandi, have led us to discover Percy Grainger's *Free Music* experiments (Crab, n.d.). Grainger's *Free Music* includes instruments, scores, audio recordings of experiments, interviews and writings on the subject, which are deposited at the Grainger Museum, Melbourne.

During a weekend recording session at the Grainger Museum in November 2003, Joanne and I had the opportunity to view privately a collection of Grainger's whips. This was quite a bizarre experience for there is a substantial quantity of these oddities. They are kept in a bottom draw, in a storeroom, locked away from the public eye. There are more than eighty in all (including canes) handcrafted by Grainger from leather thongs and other materials. They have been purpose-built and are unlike any whips one could imagine: modified lightweight riding crops, often with stings

ISSN 0749-4467 (print)/ISSN 1477-2256 (online)
DOI: 10.1080/07494460600647519

attached to their ends. One of the more interesting specimens (Figure 1) is constructed around a conducting baton.

Whether this collection is complete or only contains his lasting favorites, we could not be certain. Although there is a recurring scale and dimension, Grainger's whips demonstrate a great variance in design, striking and impressive. Some whips are no doubt prototypes, while others are well used (in fact, bloodstained). The whips document Grainger's fetish, his obsessive/compulsive and socially unacceptable behavior. They also represent a long artistic process and we could not help making some parallels regarding our own leather instrument work.

To begin with, spending over ten years in the pursuit of making the right instrument could be seen as obsessive behavior. Also, returning to practice an experimental instrument every day, for a significant amount of time, could easily be described as 'compulsive'. The experimental beat-less, raucous, gliding-tone, microtonal music we play hardly fits into the boundaries of socially acceptable music. We also continue our work irrationally, in the knowledge that music companies already control our ideas and technology in an economic sense; that sleeping patents lie in wait for the moment you decide to go into production making thousands of *Light Harps* or *Light Harp* pencil sharpeners.

Whether you choose to define *fetish* as an object, an obsession or as a sexual fixation upon a particular object or body part, it is a word that keeps popping up in the sound art domain. The iPod is sold to us as a *fetish object of epic proportions*.[1] Not a healthy sales pitch for teenagers. However, the 2004 Prix Ars Jury identified *fetishization* of technical processes as 'a serious problem confronting sound artists' (Leopoldseder et al., 2004, p. 75). There is a sound ethnomusicological definition of 'fetish' that relates to iconography and the aesthetic design of instruments. African harps decorated with singing goddesses and dog-headed, breasted Indian instruments spring immediately to mind. Perhaps the Prix Ars jury was concerned about obsessive

Figure 1 Selection of Grainger's whips (Courtesy of Grainger Museum Melbourne).

behavior in regards to technical processes. Yet they went on to praise an artist as 'a pre-eminent *laptop* musician'. I forget how much our field is obsessed with technology until I had to explain to a relative, that a *laptop* musician simply played a *laptop computer* and was not in fact a specialized sex worker. She is still dubious about the term and perhaps we should be too. Imagine yourself looking back from the future when your computer has become wristwatch sized or even secretly stashed in your underwear.

'Fetishization' as a term can also be found alongside 'hypostasization', 'negation', 'empirical others' and numerous other copies and pastes of Adorno. Sex is usually not far away from these discussions where noise, dissonance, politics and the economy all touch on the importance of dialectics, confines and mobility (Fernández, 2005, p. 37).[2] Sensor-body suits, latex and rubber, heat sensors and touch also need to be mentioned in a discussion of 'fetish'. Networked body-suit performances by Stenslie (2005) explore sexual experience and gesture as related to musical performance, and Schroeder (2005) discusses the notion of self-touch in relation to the performance of music.

Sex, alongside luxury destinations and status enhancement, has been used to sell anything and everything and perhaps we can understand 'fetish' in a broad economic context. The economic paradigm dominates much of our world now, especially the research sector, where in Australia, research has undergone a massive shift towards an applied focus and meshing with industry. The shift is characterized by a fixation on *relevance* and the process of *design*. New technologies and their potential commercialization generate a heady optimism that Terry Flew (2002) has described in the Queensland University of Technology's mantra *Creative Industries*:

> Cultural processes such as design and signification impact upon all aspects of everyday life, particularly those related to the consumption of commodities. Culture is thus recast from being a distinct sphere of social life, to something that permeates everything from the design of urban spaces, offices, means of transport and communication (e.g., the design of users and those who see the user) and the promotional strategies of corporations and, indeed, governments.

If we are to be recast from a 'distinct social sphere' and 'permeate office spaces', 'means of transport' and the 'promotional strategies of corporations even governments', where does playing a musical instrument fit in? Perhaps Flew would prefer that we discuss the *body-office-space* paradigm? After all, the history of electronic instruments includes Thaddeus Cahill's *Telharmonium* (the original piped music machine) and was not the success of the theremin originally due to Communist propaganda and the promise of electrification? Francis Wheen would have a field day dissecting the mumbo jumbo and 'sex'd up' Stalinism proposed by *Creative Industries*.

However, putting aside the politics of our time, it is important to remember that *instrument-technology* extends far back into human evolution. The discovery of bone flutes in Slovenia (dated to 40,000 BC) and more recently in China (from around

90,000 BC) suggests that instrumental music predates both figurative art and human speech (Tattersall, 2002). It is hard to imagine that all of the hitting, blowing, bowing, plucking, scraping, squeezing, tonguing, sliding, tapping, banging, rubbing, fingering and strumming is going to be replaced by piping pasted, compressed loops into the office building elevator. Playing, performing music and creating musical instruments remain intrinsically human. The development of electronic instruments continues this evolutionary course, with ever-increasing speed and adapting not to environmental changes, but to the latest technologies.

New Instruments

This speed has greatly expanded the field of electronic instruments since we began our work in the 1990s. Musicians are offered increasing access to new technologies that can quickly develop new instruments. Network protocols such as OSC, are beginning to purge the old MIDI language through a range of new interfaces, such as the products offered by Kroonde and Gluion. Micro-electronics Internet groups such as the MIDI Box network run by Törsten Klose, have made available cheap MIDI circuits and PIC chip-software, allowing musicians the chance to construct their own customizable interfaces without the astronomical engineer's fee. Novel controllers, mixers and DJ spatial sensor interfaces for music are available straight off the shelf in music stores.

A proliferation of theoretical literature regarding the development of electronic instruments has also flourished. Within this discourse has emerged a strong *design* movement and authors such as Insook Choi (2003, pp. 201–204) and Garth Paine (2004, pp. 80–86) have questioned the relevance and definition of the *virtuoso*. There is also much blurring of those old traditional roles such as composer, performer and listener. New definitions of what an instrument is and should be have been investigated by a new generation of researchers and are increasingly divergent from any traditional music model. Today's field embraces a diverse range of activities including dance rave events, web-based instruments, interactive works, game controllers, multimedia installations, wearable technologies and mobile phones.

Fifteen years ago, Jeff Pressing (1990, pp. 12–25) imagined a super-instrument stretching the human limit of control with up to ten independent control data streams and providing the player with multiple channels of quality sensory feedback. Controllers and interfaces then were expected to develop high resolutions, fast scanning rates and sensitivities capable of very fine expressive control. Pressing's definition of a successful instrument was based on 'ten fundamental issues'. These issues not only tackled immediate problems regarding control modes, mappings, scanning rates and resolution, but other issues such as adapting existing *historical* techniques, the *appropriateness* of control and establishing a *naturalness* to the *perceived link* between gesture and resultant sound. Pressing's super instrument suggested that technology should be used to extend the

boundaries of existing musical instruments. Pressing's super-instruments have sadly never been built. Instead, interactivity has shaped the development of electronic instruments where public interaction, composer-performer, machine-listening and automated composition have usurped the virtuoso performer and their expressive instrument needs.

In stark contrast to Pressing's *ten fundamental issues* are the *ten commandments of interactivity* presented more recently at NIME by Ulyate and Bianciardi (2000). Their commandments define a set of criteria for public interaction where skill development is not considered applicable and the level of expertise of the user is pure novice. The commandments reward movement, provide participants with immediate reactions, require no instructions, no expertise, no thinking, keep things simple, recognize responsiveness as more important then resolution and emphasize a modular approach to design. Ulyate and Bianciardi claim to have created these commandments while running interactive dance rave events.

Other approaches proposed by Cariou (1994) and Mulder (2000, pp. 1–23) have developed electronic instruments to existing human motor skills. By making use of existing motor skills, these authors hoped to circumvent the musician years of commitment to developing new skills. Rebelo's work applies the media theory of prosthesis to instruments (Rebelo & Van Walstijn, 2004). Physical modeling is used in an intervention of an acoustic sound to mimic, extend or fulfill a potential of the body. For Rebelo, the player's intention and the instrument (which he defines as a point of resistance) constitute an *acoustic threshold*.

The continual modeling of electronic instruments from existing acoustic instruments has reached an exotic stage with Cormac Cannon's *EpipE* Uilleann Pipes (Cannon et al., 2003, pp. 3–7) and Diana Young's *HyperPuja* (Young & Essl, 2003, pp. 9–14) representing two examples. Completely new and novel instruments are being designed for specific forms of synthesis, sound generation or musical interaction, including *PebbleBox* and *CrumbleBag* controllers for granular synthesis (O'Modhráin & Essl, 2004, pp. 74–79) and *Blockjam* (Newton-Dunn et al., 2003, pp. 170–177): a polyrhythmic sequencer interface that forms a series of interconnecting block switches. The switch's function is displayed by an LED panel and can change throughout an interaction or piece. Another recent work *reacTable* extends this multi-user approach with simultaneous network performance (Kaltenbrunner et al., 2004).

Something one can observe from the field of new instruments is a general lack of ensemble music. Also, there seem to be few instruments/interfaces that are ever developed past an initial stage. The lack of ensemble focus may be due to a preference of artists to work alone, perform solo and or travel portably. Yet perhaps this is a reflection of our highly individualized aesthetic, challenged by the rigor of defining an ensemble language? Possibly our imagination is limited to a certain fashion, dominated by the general disposition of DJ laptop (mouse and fader). The piping, pasting of loops, DJ-ing and VJ-ing has definitely shifted music into an architectural realm where sound has a new meaning (sonic décor).

Playable Instruments and Embodiment

As an ensemble interested in playing live, we were attracted to technology as a means of discovering new sounds and music. We considered synthesis and signal processing as essential areas for new instrument development since they allow one to build instruments beyond the constraints of acoustic physics. For example, a pitch-shifter can transpose a sound/signal much lower than it is physically possible to blow/play on a pipe of the corresponding length. Second, as improvisers, we wanted to create instruments that would play together well and present a strong visceral link between sound and gesture. This was desirable for the purpose of cueing each other during performance and also so that the audience could know who was playing a particular sound. Finally, we wanted to make instruments that defined a palpable link for the musician, that encourage practice, that are expressive and worthy of obsession.

We defined these ensemble goals in the term 'playable', which specifically means: expressive, responsive, versatile in solo and ensemble performance, visceral (*naturalness*, *appropriateness*, good visual feedback), palpable (allowing for skill development, an instrument you can practice for hours), inspiring (intuitive, revealing new things to the player) and having a definitive sound or character. Our aim was to develop instruments in an ensemble. Joanne (a double reed specialist) and I (a pianist) were to bring contrasting skill sets to the project. Before we set about making, we examined other instruments outside the Western music tradition. We surveyed musical instruments from Asia to Africa, and another investigation transcribed and studied ornamental monophonic traditions of India and Vietnam. This led to the development of synthesizer controllers (*Light Harps*; see Figures 2 and 3) for Indian music and the performance of *Gamaka* (Favilla, 1994a, 1996). Later on, these investigations focused on multi-parameter and virtuosic performance (Favilla, 1994b, 1997). This in turn led to the development of *meta* or modified, double-reed instruments such as the *Serpentine-Bassoon* (Figures 4 and 5) and

Figure 2 *Light-Harp* ancillary controllers.

Contra-Monster (Figures 6, 7 and 8). These were electroacoustic instruments developed for multi-parameter control of live signal processing. Our early instruments were made from wood or fiberglass. Eventually the instruments were made from leather in collaboration with Tasmanian artist Garry Greenwood.

Through our investigations, we discovered how extremely interconnected instruments are to their musical languages. For example, try to perform a traditional raga on the piano or a Chopin prelude on a Karnatic veena. There are obvious design issues within this cultural crossover, but there are many other issues that come to light when the sensory feedback of instruments is considered. Jazz pianists feel the vibrations of their dissonances through the keyboard while veena players adjust their pitch-bends using force feedback. Visual feedback is just as important. For example, the popular jazz instruments, piano, guitar and saxophone allow players to recognize instantly phrase/chord shapes and structures that have to be mentally envisaged by trumpet players and vocalists. Visual and tactile feedback allows for skills to develop quickly. Electronic instruments allow for these systems to be specially designed. Visual displays also offer the musician enhanced control monitoring, such as a numerical display of fine pitch tuning in cents (1/100th of a tone).

Figure 3 Leathery *Light-Harp*, dimensions $164 \times 64 \times 29$ cm.

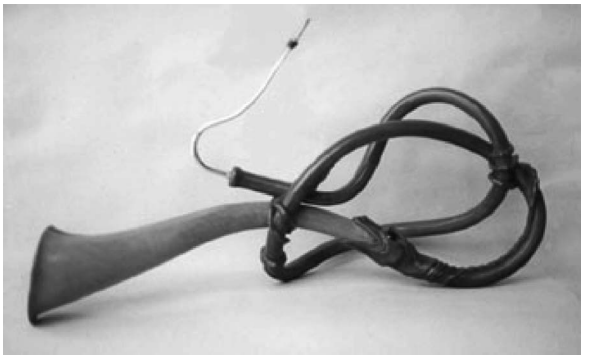

Figure 4 *Serpentine-Bassoon*, dimensions $33 \times 78 \times 26$ cm (Photo by Philip Kuruvita, 2002).

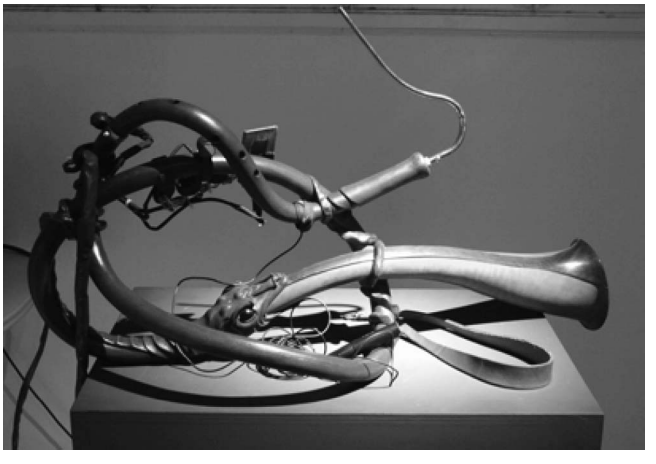

Figure 5 *Serpentine-Bassoon*, with controllers attached (Photo by author, 2005).

Looking back in time and past the exuberance of making our first interface, we found ourselves facing critical problems and design flaws. Many of these came to light during ensemble practice. Ideas that had propelled our work vigorously for a time were completely dropped as other courses and possibilities emerged. The steady tide of technological change also swept us along. Rack-mounted MIDI gear, FM synthesis, wave-form/samplers, effects-units, pitch-trackers, digital signal processing, surround-sound and the MAX language shaped our work. Eventually the trial and error approach yields some insight. Due to transmission latencies of the human nervous system and its limitations on performance control monitoring, we discovered that successful instruments utilize the body parts that connect from higher up the spinal column. This means instruments played by arms, fingers, facial muscles, embrochure and breath. Also the first three fingers and thumbs develop technique much faster

Figure 6 *Contra-monster*, visual display, 2005.

Figure 7 *Contra-monster*, detail of force-sensitive resistors, 2005.

than the little finger. We advise that priority should be given to these dominant fingers when mapping prominent expressive parameters. Whenever possible, sensors should be arranged to allow for multiple dimensions of simultaneous control. Over this period we found ourselves working in multiple roles as instrument builders, improvisers, instrumental-musicians, composers, software programmers and even hackers. As the work developed, we gravitated more to an exploratory reflexive approach to playing. We have found that the sensor-mappings that offer the most possibilities to a performer are usually the mappings that are also intuitive, revealing more each time they are explored.

Intrinsic to the success of our instruments and music is the notion of 'embodiment'. This is a subjective area of our research and, broadly speaking, is defined as a convincing relationship between physical gesture and resultant sound. 'Convincing' in this sense does not mean realistic. Nor do we believe in audible gesture or universal musical gestures. For example, we believe the tiniest movement of a fingertip is

Figure 8 *Contra-monster*, joystick controller, 2005.

entitled to make the hugest possible sound. After all, that is the sort of thing digital instruments do that acoustic instruments do not. Embodiment remains a process. It is a questioning and discovery, an ongoing dialogue between musician, controller-interface, the software mapping and the music. Not only does it encompass a multitude of roles, but, like Grainger's whips, it is also a process documented by a series of objects, instruments or fetishes. The sobering thought is that it may require a lifetime of obsession and compulsion to create truly successful new instruments.

Acknowledgments

We dearly acknowledge the contributions of three remarkable Australians. First, Garry Greenwood, whose passing in April 2005 was a tragic loss. Garry's incredible leatherwork will inspire Australians for years to come. We also would like to acknowledge Jeff Pressing and his support for our work over the years previous to his passing. Without Jeff's support, we would never have believed in developing our first prototype. Also, to David S. Brown, whose work and remarkable talent has been of great inspiration to our project.

Notes

[1] The iPod has become a fetish object of epic proportions (see www.us.gizmodo.com/).
[2] www.eng.fju.edu.tw/Literary_Criticism/marxism/Adorno-benjamin.html.

References

Cannon, C., Hughes, S. & O'Modhráin, S. (2003). EpipE: Exploration of the Uilleean Pipes as a Potential Controller for Computer-based Music. Paper presented at the Conference on New Interfaces for Musical Expression, Montreal.

Cariou, B. (1994). The aXiØ MIDI Controller. Paper presented at the International Computer Music Conference, Aarhus.

Choi, I. (2003). A Component Model of Gestural Primitive Throughput. Paper presented at the Conference on New Interfaces for Musical Expression, Montreal.

Crab, S. (n.d.). *The Free Music Machine.* Available online at: www.obsolete.com/120_years/machines/free_music_machine (accessed October 2005).

Favilla, S. (1994a). The LDR Controller. Paper presented at the International Computer Music Conference, Aarhus.

Favilla, S. (1994b). Live Performance and Virtuosic Pitch-bend Technique for the Synthesizer. Paper presented at the International Computer Music Conference, Aarhus.

Favilla, S. (1996). Non-linear Controller Mapping for the Gestural Control of Gamaka. Paper presented at the International Computer Music Conference, Hong Kong.

Favilla, S. (1997). Real-time Control of Synthesis Parameters for Light Harp MIDI Controller. Paper presented at the Australian Computer Music Conference, Auckland.

Fernández, M. (2005). Dissonance, Sex and Noise: (RE)Building (HI)stories of Electroacoustic Music. Paper presented at the International Computer Music Conference, Barcelona.

Flew, T. (2002). Beyond ad hocery: Defining Creative Industries. Paper presented at 'Cultural Sites, Cultural Theory, Cultural Policy': The Second International Conference on Cultural Policy Research, Te Papa, Wellington.

Kaltenbrunner, M., Geiger, G. & Jordà, S. (2004). Dynamic Patches for Live Musical Performance. Paper presented at the Fourth Conference on New Interfaces for Musical Expression, Hamamatsu.

Leopoldseder, H., Schöpf, C. & Stocker, G. (2004). *International Compendium-Prix ars Electronica 2004.* Ostfildern Ruit, Germany: Hatje Cantz Ars Electronica.

Mulder A. (2000). Towards a choice of gestural constraints for instrumental performers. In *Trends in gestural control of music* (pp. 322–353). Paris: Ircam-Centre Pompidou.

Newton-Dunn, H., Nakano, H. & Gibson, J. (2003). Block Jam: A Tangible Interface for Interactive Music. Paper presented at the Conference on New Interfaces for Musical Expression, Montreal.

O'Modhráin, S. & Essl, G. (2004). PebbleBox and Crumble Bag: Tactile Interfaces for Granular Synthesis. Paper presented at the Conference on New Interfaces for Musical Expression, Hamamatsu.

Paine, G. (2004). Gesture and Music Interaction: Interactive Engagement through Dynamic Morphology. Paper presented at the Conference on New Interfaces for Musical Expression, Hamamatsu.

Pressing, J. (1990). Cybernetic issues in interactive performance systems. *Computer Music Journal*, *14,* 12–25.

Rebelo, P. & Van Walstijn, M. (2004). Designing acoustic thresholds. In *Les journées du design sonore.* Paris: IRCAM.

Schroeder, F. (2005). The touching of the touch: Performance as itching and scratching a quasi-incestuous object. *Extensions: The Online Journal of Embodied Technology*. Available online at: www.wac.ucla.edu/extensionsjournal (accessed October 2005).

Stenslie, S. (2005). *Wiring the flesh: Towards the limits and possibilities of the virtual body.* Available online at: www.stenslie.net/stahl/txt/wirflesh.html (accessed October 2005).

Tattersall, I. (2002). *Monkey in the mirror.* New York: Harcourt.

Ulyate, R. & Bianciardi, D. (2000). The Interactive Dance Club: Avoiding Chaos in a Multi-participant Environment. Paper presented at the Conference on New Interfaces for Musical Expression, Seattle, WA.

Young, D. & Essl, G. (2003). HyperPuja: A Tibetan Singing Bowl Controller. Paper presented at the Conference on New Interfaces for Musical Expression, Montreal.