# *Hearing the Free Music: Percy Grainger, Australian Visionary of the Soundscape, Creator of Electro-Acoustic Free Music and Sound Machines*

By Ros Bandt

Abstract: ***In the* Free Music Statement *of 1938, Percy Grainger clearly articulated his philosophy of music as coming from an intimate relationship he had to the environment and his attentiveness to the sonic world around him. From this he imagined a new free music, following contours of the physical and acoustic landscape to create a microtonal graphic and sounding world of polyphonic complexity like the world of nature. So too the introduction of machines such as trains and planes was a metaphor for the kind of sound pattern and automatic machines he was to develop. This article identifies these relationships, showing how Grainger passionately interpreted the soundscape into a new sonic world of free music heralding the new age of electronic music. Grainger himself said the* Free Music *was his only important contribution to music and that the theremin was the most perfect of all instruments. The world premiere of the* Free Music *for multiple theremins did not occur for another sixty years in 1998 when I curated it for the* Beaming the Theremin *event for the Melbourne International Festival of the Arts at the Grainger museum. This article articulates these events and asks why Grainger's pioneering contribution to the soundscape and electro-acoustic free music has been so largely ignored.***

The Australian born composer, performer and inventor, Percy Aldridge Grainger, 1882–1961, is often better known as a concert pianist than for his numerous innovations as a composer and inventor. These include complex multi-metre rhythmic systems, the development of automata through piano rolls, music machines, colour graphic notation, electronic musical instruments, wax cylinder recordings, and audiovisual experiments such as his third free music machine, the electric eye tone tool. The impetus for these inventions came from his attention and curiosity to the sounding world around him. By 1938 Grainger had articulated his philosophy of *Free Music,* clearly stating his position in relation to the soundscape and showing ways forward into unchartered territory (Grainger 1938).

## Grainger and the Soundscape, the surrounding sonic habitat

In 2008 the word soundscape has a long history. Coined by the Canadian composer R. Murray Schafer in 1968, *The New Soundscape* and fully discussed in his seminal book *The Tuning of the World*, 1977, the term soundscape has had many applications in many nations over the past three decades. Environmentalists, composers and scholars in many disciplines have embraced it (see e.g. Järviluoma 1994; Truax 2001; Thompson 2002; Hedfors 2003; Feld 2004; Oliveros 2005; Duffy 2007; Hiramatsu 2007; LaBelle 2007; Torigoe 2007). Its common acceptance shows in CD and book titles, which use the word even without defining it (Richards 2007).

In 1938 the consciousness of sound in the environment was just as strong for Grainger, but not so commonly accepted in the musical world at that time:

> Out in nature we hear all kinds of lovely and touching "free" (non- harmonic) combinations of tones; yet we are unable to take up these beauties and expressiveness into the art music because of our archaic notions of harmony. (Grainger 1938.)

Percy Grainger was very clear about the influence that the natural environment had upon him, from a very young age. His early notebooks and diaries recount in detail his impressions of his immediate environment, particularly Albert Park Lake and Brighton Beach in Melbourne, Victoria, Australia. He was mesmerised by the constant lapping and movement of the wind on the surface of the water and the different sounds it produced rising onto the shore. In the *Free Music Statement* of 1938 he writes:

> Personally I have heard free music in my head since I was a boy of 11 or 12 in Auburn, Melbourne. It was my only important contribution to music. My impression is that this world of tonal freedom was suggested to me by wave-movements in the sea that I first observed as a young child at Brighton, Vic., and Albert Park, Melbourne.

Further from home he recounted detailed descriptions of the Adelaide Hills and Dales, noting their endless merging contours. One of his childhood notebooks has sketches of these shapes in multiple coloured waves, using different coloured pencils to distinguish between them, picking out different relationships of the rising and falling in each line. Grainger codified these forms throughout his life referring to the continuous environmental fluid curves rising and falling "as the Hills and Dales". They are instantly recognizable in the rising and falling continuous curves of the *Free Music* for theremin notations and also in the undulating patterns of the brown paper rolls that drive the kinetic music machine called the *Kangaroo Pouch* of 1952. From the outset it was a set of relationships such as we see in nature having fluid convergences and divergences, the horizontal and vertical relationships being irregular and unpredictable, unlike the metricality of the prevailing music of his period.

These perceived wave movements were translated into microtonal pitch undulations in continuous sounds, working together and in clusters singly and polyphonically. This thinking brought about a revelation in the structure of music. In it he found a viable alternative to the confines of the traditionally composed music based on harmony and rhythm and beats. Space notation rather than bars prevailed and sinuous line against line of melodic glissando replaced harmonically conceived vertical motion. In looking at the scores for the *Free Music* one can see in the graphic notation precursors to the oscilloscope and sonogram, electronic calibrators of frequencies and amplitudes

Ex 1. Photo of the **Free Music Statement** and the **Free Music I, and II,** 1936–7. Courtesy of the Grainger Museums, The University of Melbourn. Black and white framed copies, not the colour originals

of electronic music. These two parameters are the dominant creative tools used by Grainger in these works. Great specificity of detail is given to the dynamic dimension, with markings from fffff-ppppp, relative concepts of the day but expanding the dominant understanding of dynamic range to include smaller units of change and variation.

Grainger is taking us into the immersive analytical realm of each parameter, microtonal intervals changing over indeterminate lengths of different dynamic contours. Inspired also by the glissandos heard in aircraft and environmental machines, Grainger advocates this as socially relevant music making: "It seems to me absurd to live in the age of flying and yet not be able to execute tonal glides and curves" (Grainger 1938.)

He is calling out for a new approach for musical composition, one that is based on the sounds of modernity, natural and man-made, that has the freedom for individualistic lines to move against each other as multiple aeroplanes would. Grainger is envisaging a flexible and moving counterpoint where all tones are acceptable to intercept, free of the laws of fixed harmony and timing schemes. He is designing sound spatially. The same could be said of soundscape composition and the electroacoustic and electronic musics of our time.

## Technology and Sound Machines

Grainger was curious about all technological inventions of his day. He recorded songs all over the world on the best available wax cylinders showing his respect and sensitivity to sites and the sounds that belonged to them. He immersed himself in the texts, languages and syntax of what he heard. He was aware of the sound /site relationship, the natural and artificial, the conventional and the yet to be made. His idea was to create machines that would eliminate the performer. The Grainger Museum at the University of Melbourne houses these numerous early experiments, an automatic foot controlled page turner, the sixth tone butterfly piano, slide whistles and recorders, free music systems and experiments powered with hand drills, sewing machines, vacuum cleaners. He adapted materials from all walks of life, cotton reels, buttons and acetate discs, gleaning everything from the world around him and seeing the recyclable opportunities for the simplest materials to contribute to creating sound machines. It was an idea that never left him and he spent the latter years of his life in White Plains N.Y. doing just that, collaborating with his friend and scientist Burnett Cross, building several extensive music machines, the Reed Box Tone Tool, the Electric Eye Tone Tool and the Kangaroo Pouch Machines. According to Burnett Cross the sole purpose of these automata was to trial the free music "so that he could hear in the room what he heard in his head. That was the first and really only objective of the business…" It is clear Grainger could see many new possible musical outcomes from exploring the interfaces of art and science as a basis for his original inventions, sounding machines and automata. The free music statement December 6, 1938, was typed in his own hand with the too-narrow margins. It can be regarded as his life long credo:

> But Free Music demands a non-human performance. Like most music, it is an emotional, not a cerebral, product and should pass direct from the imagination of the composer to the ear of the listener by way of delicately controlled machines. Too long has music been subject to the limitation of the human hand, and subject to the interfering interpretation of a middle performer. A composer wants to speak to his public direct. Machines (properly constructed and properly written for) are capable of niceties of emotional expression impossible to a human performer. " (Grainger 1938.)

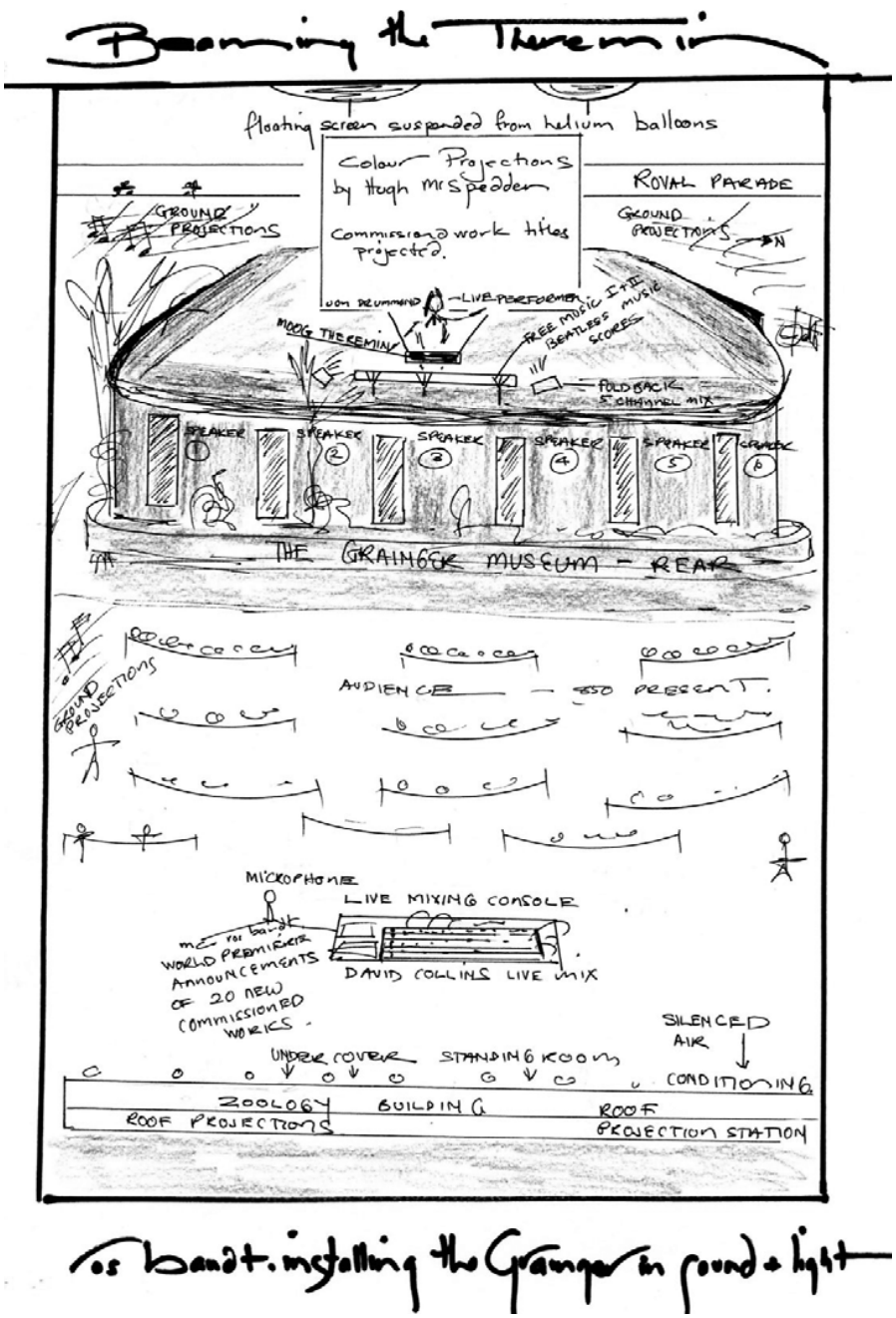
Grainger was impressed by the electronic musical instrument, the theremin. He singled it out as "the most perfect tonal instrument(s) I know." Capable of microtonal glissandi, and very subtle dynamics, they served his purpose well for the free music. The first performance for string quarter was in 1935, the *Free Music for String Foursome* conducted by Percy Code as part of the Melbourne Broadcast lectures Grainger gave at the Australian Broadcasting Commission. This recording does not seem to exist any longer. In 1936–7 he revised the piece for four theremins and composed a new piece for six of them. He also adapted his multi-metre *Sketch for Sea Songs* for theremins under the title *Beatless Music*, October 15–16, 1937. In 1938 Grainger describes the compositional process of the *Free Music* colour graphic notation as follows:

> In the original scores (see Ex. 1) each voice (both on its pitch-staves and on the sound strength staves) is written in its own specially coloured ink, so that the voice is easily distinguishable, one from the other. (Grainger 1938.)

## Hearing the Free Music, Recordings

During my time in the museum as artist in residence researching and exhibiting my fluid multi-channel sound installation *A Garden for Percy's Delight,* 1997, several questions presented themselves to me in my research on Grainger's *Free Music.* I wanted to hear *Free Music*. In the museum I made direct dubs onto my DAT


Ex. 2. Dr Ros Bandt in the Grainger Museum making a performing edition by re-drawing Percy Grainger's **Free Music I, II** and **Beatless Music**. 1998.




Ex 3. Concept Drawing for curating the ***Beaming the Theremin*** Event, Ros Bandt

machine from the reel-to-reel recordings of Burnett Cross's *Kangaroo Pouch*, from experiments for the reed box tone tool, as well as Les Craythorn's version for the Synthi 100. I was given permission to incorporate these recordings into my floating world of my three-dimensional spatial sound installation. These were combined with many other recordings of free music experiments and instruments in the museum, which had not been taken out of their glass cases since Percy had put them there. It was my intention to air them, outside and into the ear. They were heard from eight suspended parabolic speakers emitting a fluid multi-channel random free music of over 100 computer files. I knew Grainger would have loved to have heard his free music fly about through the courtyard of his own museum, in amongst the recorded and real sounds of aeroplanes and the general soundscape ambience, had he been alive with today's technology. But these were reconstructions, not as Grainger had written, for theremins. (See http://www.abc.net.au/arts/lroom/gardel.htm.)

I wanted to hear *Free Music* for the instruments Grainger intended, the theremins. Yet there were difficulties to overcome:

1. There was no record that a theremin performance had ever occurred.

2. Surprisingly, there was no theremin in the Grainger Museum despite Grainger's vast and eclectic world music instrument collection.

3. The original colour graphs of *Free Music* could not be located. Barry Ould had emailed me that Teresa Balough had sighted them at the Library of Congress, New York, at the time of working on her complete catalogue. But they could no longer be located. I would have to make do with the black and white photographs in the Grainger museum.

I found these things mystifying, especially as the composer himself was emphatic that *Free Music* was his only important contribution to music.

In 1998, I was invited by Naomi Cass and the Board of the Grainger Museum to curate an event, which would feature the world premiere of these works as a free event for the Melbourne International Festival. I set about redrawing all the scores into a performing edition, which took some weeks.

Through this process I understood intimately the relationship of parts to the whole, the intersection of the undulating pitched hills and dales and their corresponding dynamic trajectories, one hand for each side of the theremin. How sensible. Next the sound source. I investigated various commercially available theremins and settled on a signed Bob Moog assembled kit having spoken at length with Bob about the Grainger museum and Grainger's work.

I had decided to acquire the theremin for the museum as a lasting tribute to *Free Music* and to fill the gap in the collection. The theremin arrived. It was clear it would take some time to be able to perform the graphs accurately. I invited Jon Drummond, electronic composer and scientist to collaborate with me to bring the sound to life. We recorded 5 tracks on Pro Tools at Move Records studio and left one track for Jon to perform live.

## Reconstructing *Free Music for Multiple Theremins* for the Melbourne International Festival 1998

I conceived *Beaming the Theremin* event (see Ex. 4) as a sound and light show to feature and celebrate the world premiere of *Free Music* for theremins. The Grainger museum would become a radiant lotus flower of free music, and projections of Grainger's scores would surround the building. Grainger's *Free Music I and II* and *Beatless Music* would be played on the hour, three times in all, played live from the Grainger Museum itself. *Free Musics* for multiple theremins would be heard for the first time on the theremin, sixty-one years after they were composed for it.

To effect this celebratory homage, six large speakers were attached outside the rear wall of the building. Jon Drummond performed from the roof (see Ex. 5), with the free music scores projected on a floating helium balloon screen above the museum. The world

Photo: Ponch Hawkes, Courtesy of the Grainger Museum and The Australian Sound Design Project.

Ex 4. Jon Drummond performing on the theremin for the world premiere of Percy Grainger's ***Free Music,*** October 18, 1998, from the roof of the Grainger Museum at the University of Melbourne.

premiere of the Free Music performances framed the electro-acoustic concert of twenty new innovative electro-acoustic works, commissioned especially for the event from Australian electro-acoustic artists in the spirit of Grainger. These were Aether (Leigh Perdrisat & Steve Oakes), Roger Alsop, Warren Burt, Brigid Burke, Densil Cabrera, Tristram Cary, Roger Dean, Paul Doornbusch, Ian Fredericks, Andrew Garton, Michael Hannan, Karlin Love, Gordon Monro, Paul Moulatlet, Ron Nagorcka, Jon Rose, Alessandro Servadei, Phil Slater and Mitchell Whitelaw. Two of these works, one by Andrew Garton and another by Warren Burt used the theremin. Grainger's pioneering work with the Free Music, his graphic notations based on the environment, his use of lighting in the third music machine the electric tone tool, were celebrated here in the surrounds of the museum he left to the nation. We heard *Free Music* through the beaming of the theremin as it was played. Grainger went on to invent the music machine with Burnett Cross in 1952, the *Kangaroo Pouch* with its three oscillators (hear them in Bandt 2001) which eliminate the performance altogether. But it is amazing how similar the sound is.

## Grainger's *Free Music for Multiple Theremins* as Australian Cultural Heritage

But what of its longevity? I felt the fruits of this research and sonic outcomes should be published as important cultural heritage. A few years later, (as the founding director of my newly formed online digital gallery, The Australian Sound Design Project, funded on an ARC grant), I decided to publish some of the documentation of the *Beaming the Theremin* recordings, videos, photographs and statements, on the website. This would enable future students, scholars and the community at large to listen to and "hear" *Free Music for Multiple Theremins* at its first performance from the roof of the Grainger Museum. *Beatless Music* and *Free Music II* were formatted for the web in MP3 files, images as well as a written statement. In its searchable online database, gallery and papers the Australian Sound Design Project pioneers audible research of 150 sound designs in public space in Australia. It is fitting that it has this first heritage component as a free and living searchable resource. (See http://www.sounddesign.unimelb.edu.au/web/biogs/P000299b.htm)

Happily, commercial recordings have now been made of these wonderful pieces by the great virtuoso thereminista, Lydia Kavina, the last protégé of Leon Theremin. *Music from the Ether* (Mode Records 76) includes her recordings of *Free Music I*. Another recording, *Spellbound* (Mode Records 199, 2008) includes Free *Music I, II and Beatless Music*, erroneously claiming they are the first performances of these works. However, it is heartening to see international interest in these works by such prominent and connected artists and it is exciting to have international commercially available recordings of such quality available so that this music can finally be heard. The New Zealand filmmaker John Mandelberg also made a documentary of the *Beaming the Theremin* event, which has been applauded in Russia and is used as important teaching material there and in Australia. Warren Burt and Catherine Schieve have reconstructed the third free music machine, the electric-eye tone tool. They have created wonderful audio-visual performances with Catherine's beautiful coloured acetate graphs, which emit the music from the light cells. A recent performance at the National Film and Sound Archive for Australia's National Sound Day, June 18, 2008 confirms renewed interest in Grainger's free music and its interpreters. The Grainger museum as well is undergoing a reappraisal and renovation at the present time.

## Conclusion

Grainger's innovations as a visionary of the soundscape and creator of colour graphic notation, microtonality and free music can be traced prior to 1938. This situates him in a prominent position in the canon of Western art music history as a leader of the soundscape. Eleanor Wrobell, curator of many exhibitions from the Grainger collection, entitled the 1998 exhibition, Percy *Grainger and the Sea: From water, wind and the sea, evolved the soundscapes of Percy Grainger's mind.* Grainger responded to the soundscape in all of its complexity, pioneering attitudes that would be developed later in ethnomusicological and world music practices, and electro acoustic, electronic music and soundscape composition. Grainger expanded and interpreted his acoustic world by shaping microtonal polyphony, inventing free and indeterminate music, and making electric machines. His vision and contribution to innovative art music and the soundscape necessitates greater recognition (See also Tan 1971; Balough 1975; Anderson 1979; Linz 1997; Doornbush 2000; Bandt 2000 & 2001; Burt 2005.).


Ex 5. The lit pavements using elevated overhead projections by Hugh McSpeddon.

## Credits

Thanks to the curators of the Grainger Museum: the late Rosie Florimell who allowed me extended access to record the Grainger collection in the mid nineties; to Alessandro Servadei for facilitating my installation in 1997 and access to the framed free music for a complete re-draw in 1998; and to Astrid Krautschneider for making the collection in storage available for research and facilitating photographic permissions, in 2008.Thanks to the History of the University Unit of the University of Melbourne, for funding this research through a 2008 research grant.

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