

Olfactory Translations and Interpretations

Raewyn Turner

Rhythmic vibration is essentially harmonious sharing. This sharing is universally present in musical sound, colour, light and weight, patterns of plant growth, ebbs, tides and calendric rhythms, as well as our own bio-rhythms, breathing and heartbeat.

(Doczy 1981)

From the time of the Renaissance we have developed technologies to extend the sensory capabilities of the body. Believing that we will find the truth about reality as we delve ever deeper into the physical matter of it, we have embraced technologies to measure, see, hear and smell beyond our bodies' capabilities. The Jupiter-orbiting spacecraft has been gradually transmitting to Earth the new pictures and data from its flight over Io's north pole:

We've had wonderful images and other remote sensing of the volcanoes on Io before, but we've never caught the hot breath from one of them until now. Galileo smelled the volcano's strong breath and survived.

(Frank 2001)

The senses have evolved to furnish reliable knowledge of the world and contribute to our perception of a whole reality which is based on correspondences and woven from many fragments as well as inner connections. The correspondences that we make are to capture and assume regularities in a changing whole, but the pattern that we perceive is composed from a complex entanglement of patterns.

Thinkers like Gian Battista Vico, Henri Bergson, Claude Levi Strauss, and others, show how the human sense of

reality is constantly being woven out of every centimetre of fabric at its disposal, whether that be the stuff made of materialist, evidentiary objects, or the stuff made of dreams.

(Grech 2002)

I believe that cultivating an awareness of feeling and sensation as a powerful evaluation of the environment would give more awareness of our minds' construction of reality. What we are experiencing and feeling in an environment would become as valid as the rational assumption that only what is visible, measurable, and quantifiable has the power to 'explain' why things are the way they seem. In a recent discussion with an eco scientist he expressed the need for a recognition of the perceptual analysis in his work:

As a scientist I evaluate the health of an environment by measuring isotopes in the soil, although my perceptions are far more accurate and complex. When I enter an environment I look at the way the wind blows over the lake, the ways the animals move, the look in their eyes, the space between the trees, the ways the birds fly, the smell of the air, the feeling of the place.

Our view of the world is shaped by memory, language, culture and anticipation, and is of our times. While our sense of sight dominates in the

ability to understand our environment, the breath, ‘previously associated with the life force, knowledge and divinity’ (Classen 1998) carries information to us about the world. Rhythmic inhalation brings an abundance of smells and fragrances that prompt us to create mind pictures around them.

There’s scientific Knowledge and there’s human instinct – our intuition, our sixth sense. For a couple of hundred years, the idea of scientific inquiry and objective truth has been gaining strength at the expense of what we know naturally.

(Sherman 2002)

Our knowledge through smell requires development through an understanding of our cultural histories. We must ask: What are these smells? What do they do? How do they contribute to the way that we perceive the world and our movement through it? Our sanitized western world is perfumed and deodorized with many layers of olfactory experiences, where a level of intuitive confusion is acceptable; for example, most products are perfumed with artificial compounds to disguise their own smell. Thus our environment provides an arena for much experimentation with the creation of sensory illusions of correspondence and dissonance. Contemplation and reflection on the sensations and perceptions of odour and the associated mind pictures may possibly open up new ways of understanding and perceiving our world. A recent discussion with perfumer, Louise Crouch, revealed that her subjective experience of smell with its associated colours dictates the creation of her work in composing perfumes. She furthermore has a consistent colour association with numbers and letters of the alphabet that assists her memory of around 200–300 perfumery materials she uses to create odour combinations, and she uses colour as well as smell to formulate perfumes for the commercial market.

Education and cultivation of the sense of smell may enable us to tap into a vast world of ‘imagery’ and language of odours that we are not yet aware of, and have no language for. We tend to speak of smell in metaphors and comparisons, for example ‘smells

like, reminds of’, whilst at the same time the olfactory sense is one of the most powerful with regard to the retention and recall of material.

Regarded as the sense of intuition, smell contains a whole world of uncultivated olfactory imagery and meaning which never has been and is not meant for the perfume bottle . . . if our perceptions of olfaction were expanded could we apprehend the world as a landscape of smell, as a spatial dimension through non-visual experience?

(Classen 1998)

BACKGROUND TO THE ‘FOUR SENSES’ CONCERT SERIES

In my work, I am experimenting with light, colour, sound and smell to create multisensory correspondences in works of orchestrated layers of smell in performance, audio-visual works with smell, and smell-only works. The aim is towards making a simulated synaesthesia where each sensory element is a translation of information about the other. When brought together they affect the experience each of the other, and may create a more integrated experience of a subjective, physical experience of sound, colour and smell that has the potential to transport through pleasure and joy, a multisensory experience unique to each person according to the associations they make. I’m exploring how we know the world and each other through the ‘unities’ of the senses; of smell, colour and sound in experiencing the outer world; how the inner imagination affects perception, at the point where the sensory phenomena and the ‘conscious’ are brought together. My investigations include perception, fictional translations, misinterpretation and the compensatory mechanisms that sight- and hearing-impaired people employ to ‘see’, ‘hear’ and feel the world, and whether an expansion of the senses could be brought about through the use of a sensory substitution to allow for a simulated experience in another sense.

In early work with light in music, theatre performances (contemporary music, dance, jazz,

orchestra) where I layered light over sound in improvised interpretations of sound and movement phrases, I was not aware that my colour-to-sound compulsion had a long history of experimentation by other artists. The revelation that I was not the only one to seek a creation of a simulated synesthesia came when I was introduced to William Moritz's essay 'Abstract Film and Colour Music' where I found in his opening sentence what I had been aspiring to create for many years – reference to rhythmic visual works to explore emotion and connection in sound and colour.¹

Working first with coloured light and music with a rock and roll band from art school, my initial intention was to use the contemporary music medium and popular culture to make a change in the way in which it was experienced, and to address the way in which the culture of youth protest is packaged and sold back to youth. For 7 years from 1975, travelling in trucks and buses with road crews across USA, Canada, Europe, and Australia, I translated the loud music into the deepest saturated colour, after-images, coloured shadows, hand-painted optical pattern projections, stop motion, UV, the darkness, monotonous, optical illusions, contrast and emotional colour sequences. The music industry had funds for equipment and lighting technology and Split Enz,² the band that I worked with, fully supported my experimentation, although my work (which I regarded as art) was regarded mainly as an embellishment, as wallpaper. Nevertheless, it was often referred to as an integral part of the performances, the reviews referring to 'explosions of colour', 'like painting with light'. The symbiotic nature of it meant that my work could only exist in the performances or in the various video clips that we made for broadcast. Later, in 1997, my interest in using light was rekindled when I learnt that the sun rings like a bell, inspiring me to make work again with sound and light connections, starting with ENZSO in a series of performances with the New Zealand Symphony orchestra.

The concerts for the deaf, 'Four Senses'³ in 1999 and 2002, inquire into the sensory worlds of the

blind/deaf, of hearing, of breathing in and of visualizing the world. The projects were an experiment with creating simulated synaesthesia and the imaginative 'vision' of association triggered by sensory factors. It is possible that one dedicated sense could be used for other sensory perceptions, e.g. the shape of sound, the colour of smell. Richard Cytowic describes the condition of synaesthesia as 'the rare capacity to hear colors, taste shapes, or experience other equally startling sensory blendings whose quality seems difficult for most of us to imagine' (Cytowic 1995).

THE 'FOUR SENSES' CONCERT SERIES

The 2002 'Four Senses' performances, the second series of concerts, were created in collaboration with artist/researcher Tony Brooks (UK). They were performed at the Dorothy Winstone Theatre, Auckland, New Zealand, by the Aotea Youth Symphony Orchestra and included mixed ability dance group Touch Compass, deaf signing choir Hhands, and sight-impaired vocalist Caitlin Smith. Tactile cushions and balloons were available in the auditorium for those with hearing disability.

The pre-programmed light states were created with a lighting plan and a PC based stage-lighting program to make a light resource, along with smell, of multiple sequences and cues available for use in improvisation; each piece of music had its own improvisation resource and structure. The canvas of the orchestra was dressed in white, underlit with ultraviolet light. Divided into sound groups, each section was assigned a colour and its complementary to achieve high degrees of retinal stimulation, brightness, afterimage. This colour mixing method was developed when working on earlier projects, for example with the New Zealand Symphony Orchestra (ENZSO, 1998) and the Melbourne Symphony Orchestra (1984, Australia).

I combined choices of colour and smell generated by my perception of the phrases of the sound with UV light (bluish, white and uv) which is a base 'note' found in nature – the sea, the sky, in flame –

and is also the colour that attracts pollinators to flowers but which is invisible to our eyes.

My first step in making a perceptual analysis of music is to make a morphological configuration of music in pauses and phrases as a description of sound. I interpret sound to light by making a visual representation of the sound, in an intuitive drawing, which puts sound into a relationship with other experiences, specifically a visual experience of light and dark. Phrases of the sound are coded into light, the pauses into dark, so making correspondences between sound/silence and light/dark. For the Four Senses series, the method involved intuitive drawing, charts, measurements, referral to the seasonal time of harvest of aromatic plants, and an equation which produces a selection of plants from which to choose 'smell pitch'. The chosen smell elements were orchestrated in an improvised layering of pre-selected fragrances of different pitch, throughout each piece of music.

Tony Brooks used sensors, cameras and other leading-edge technology to track body part movement and translate it into painting with coloured light, which enabled the orchestra conductor to 'paint' the 'scenes' through his gestures within an interactive space. Similarly, images of orchestra members, dancers and the signing choir for the deaf were blended into the backdrop in real-time so that their velocity of movement affected the colour of image generation and collage composition. The light collage thus

created was a play of interaction between live video feeds and sensors, and coloured light pre-programmed to an interpretation of sound, each affecting the other in a dynamic visual loop.

Meaning in music is built from silence as well as sound, and in the visual sense, through both light and dark. 'The basic pattern-forming process of proportional harmonies in nature shapes human creations; simple proportional relationships that create patterns in Nature and the arts' (Doczy 1981). It seems to me that there is an inherent proportion of sound to silence in music, and using phrases and intervals to create rhythm in sound poetry was an area explored by a group of artists and musicians who met up regularly at the Arensbergs' apartment in New York in the period 1914– 21.

In translating the new understanding of time into formal artistic elements, painters, writers and musicians focused primarily on intervals and how varying intervals could be used to approximate the distinctions between the different kinds of time.

(Richardson 1990)

The perception and comprehension of our environment is a construction built on interpretations and references mirroring nature because we are *inside nature*. Our essential rhythms and patterns, and the everyday chemistry of photosynthesis, which we rely upon for our survival, are regulated by intervals of light and dark, as are the fragrance and colour patterning of plants, signals for pollination. My process of translation to smell involved finding proportional relationships – as I understand them – between light and dark (rhythm), colour and sound pattern (signal), and smell (memory language). Central to this is the notion that light acts as a pigment-switch to whatever verdant matter (Hildegard of Bingen called the power of green 'veriditas') it is connected to, in the processes of seed production, germination, pollination. 'Studies have shown that it is not light intensity that produces flowering but the successive rhythmic periods of darkness and light' (Botany Online).⁴ The response of plants to relative lengths of day and night – photoperiodism – is the way they

•Sound Drawing of Brahms, Hungarian dances 10. Raewyn Turner 2002



	mean daylength	mean night time	approximate central point of area.	
33 August-Sept.	802 min.	638 min	46°00N 2°00E	Nîmes - Bourge
34 July August	893 min	547 min	47°00N 20°00E	✓ Dunauvaros
35			10°00N 49°00E	Mogadishu - Garowe
36			22°10N 58°00E	Muscat Sawqirah
37 June July	848.5	591.5 min	32°00N 53°00E	Ahvaz Yazd
38 Nov Dec Jan	765	675 min	12°10S 44°15E	Mutsamudu Moroni
39 May June	819.5 min	620.5 min	27°00N 30°00E 27.1833	(Asyut) Balat
40 May June July August	854.5	595.5	35°00N 105°00E	Lanzhou Chengdu
41 June July Aug.	845	595	35°00N 105°00E 36.0564	✓ (Lanzhou) Chengdu
42 June July Aug.	699 min	741	10°00N 8°00E	Anambra Abuja
43 June July Aug.	651.3	788.7	25°00S 135°00E	Goulburn Alice Springs
44 May June	854.5	585.5	35°00N 105°00E	Lanzhou Chengdu
45 Jan-July	794 min	646.0 min	20°00N 77°00E	✓ (Najpur) Nizāmābād
46			25°00S 135°00E	✓ Geraldton
47 June July Aug.	856 min	584	38°00N 97°00W	Denver (Kansas City) Salina
48 Oct-April 49			28°00N 84°00E	✓ Pokhara
49 Jan-July	743 min	697	60°00N 95°00W	(Winnipeg) The Pas
50 Nov → March.	777	663	30°00S 26°00E	✓ Bloemfontein
51 August	840	590	46°00N 2°00E	Nîmes Bourge
52			25°00S 135°00E	Goulburn - Alice Springs
53			25°00S 135°00E	Goulburn Alice Springs
54 Nov-Dec.	809.5	630.5	25°00S 135°00E	Goulburn Alice Springs
55 June July Aug.	899	541	25°00N 15°30E	✓ (Ogulin) Zagreb
56 May June	920	520	46°00N 2°00E	Nîmes Bourge
57 May June	920	520	46°00N 2°00E	Nîmes Bourge
58 June July Aug.	913	527	47°00N 20°00E	✓ Dunauvaros
59 Jan-April, July, Oct	727	713	5°00S 120°00E	Bandung (Ujung Padang) Balikpapan
60 Tropical	726.25	713.75	20°00S 47°00E	(Antananarivo) Antsirabe
61 June July August	766 min	674	28°00N 84°00E	✓ Pokhara
62 June July Aug.	899 min	541	45°00N 15°30E	Antananarivo Ogulin
63 March-April, May	700 min	740	20°00S 47°00E	Antananarivo Antsirabe
64 March-April, May	711 min	729	12°10S 44°15E	Mutsamudu

Everlasting	France	summer → autumn	dark yellow (silver grey, yellowish <u>leaves</u>)
Sweet Fennel	Hungary	mid-late summer	yellow (<u>leaves & seeds</u>)
Frankincense	Somalia		
Frankincense ^{co2}	Oman		
galbanum (communis)	Iran	early to mid summer	yellow
geranium bourbon rose	Comores	spring to summer	mauve (<u>leaves</u>)
geranium egypt rose	Egypt	spring to summer	mauve "
geranium china rose	China	spring to summer	mauve "
- ginger	China	Summer	pale green to ochre (rhizome) deep purple
ginger ^{co2}	Nigeria	Summer	" "
grapefruit	Australia	winter	
Ho leaf	China	spring to summer	greenish yellow
- Sandalwood	India	tropical	dull yellow (<u>wood</u>)
Australian sandalwood	W. Australia		
spearmint	USA	Summer	pink, lilac, white (<u>leaves</u>)
- Spikenard	Nepal		red or tinged purple
Spruce 'extra'	Canada (2-3 years)		purple brown (<u>cones</u>)
- tagetes	South Africa	late spring - early autumn	orange-yellow
tarragon	France	late summer	yellowish-white
tea tree Eucalypt	Australia		
tea tree premium	Australia		
lemon tea tree	Australia	late spring, early summer	white, pink tinged
wild thyme	Croatia	Summer	purple
thyme, rouge organza	France	late spring, early summer	bright purple to white
Sweet thyme	France	" " " "	
valerian	Hungary	summer	pink or white
- vetiver	Indonesia	tropical	
- vetiver bourbon	Madagascar	tropical	
winter green gauttheria	Nepal	Summer	white or pink
yanou	Croatia	early to late summer	lilac
ylang ylang	Madagascar	autumn	yellow
ylang ylang super	Comores	autumn	yellow

translate light signals into chemical or physical growth. Darkness, the period when the plant uses the food it manufactured during the light period, is of utmost importance.

Plants are genetically programmed to produce flowers at just the right time of year, different at particular latitudes and altitudes, and so, to aid reference, I made a chart of the daytime and night-time hours and latitudes of the pollination period for a wide selection of flowering plants that are available as essential oils. I used the approximate central point of an area (mean latitude)⁵ where those plants are harvested for their essential oil, and the time of harvest of those plants in that area, to find the mean daylight and night-time hours over that period.⁶

Having worked with Symphony Orchestras I feel that one of the best ways of experiencing music is to stand in amongst the violins and feel the vibrations in the body. In *Four Senses 1999*, I positioned the audience in and around the orchestra. Initially the deaf people that I consulted were reluctant to participate in an experimental way, expressing anxiety about the potential discomfort of, and confusion from, the sensory stimulation. Careful to work with sensitivity through this project, and careful to tone down colour and smell, I inter-related the colours and smells to the music, using a schema of seven colours and seven fragrances. The smells, consisting of single 'flavours' or proportional mixtures of several essential oils, were chosen through a complex consideration of the factors in each musical piece: the composer's life, the proportion of orchestra used in playing the piece, the history of the time and place it was written, the intention, the number, length and theme of movements, rhythmic statements and structure.

POTENTIAL RELATIONSHIPS BETWEEN MUSIC, ARCHITECTURE, AND SMELL

In *Four Senses 2002*, the music drawings, which I made to assist me in the translation of the music, were also used in a collaborative paper which was

recently presented at the 5th Generative Art Conference, GA2002, Politecnico di Milano University (Turner 2002).

The paper and work resulted from the first stage of an ongoing collaborative research with an architect, Mirjana Devetakovic Radojevic (Faculty of Architecture, University of Belgrade), who is interested in generic architecture. The research examines potential relationships between music and architecture and explores how music could be a source for generation of spatial forms, and vice versa, whether architecture might generate music and smell. In the first stage of the research two different existing generic principles were combined. In *Spatial Forms Generated by Music – The Case Study* (Devetakovic Radojevic 2002), the graphic interpretation of the music served as a pattern for creating the spatial forms in the architecture.⁷ Our project investigates the manifestation of spaces and objects that are experienced in multi-sensory ways, as elements being generated firstly from the material information of, for example, the amount of estimated light entering or the sound generating an architectural structure over a period of time which would determine the smell element (as in photoperiodicity). When the sensory elements are put together they will (hopefully) create more integrated correspondences that may lead to different perceptual understandings of both real and virtual environments.

In this experiment the Brahms *Hungarian Dance No. 1* has been used as an initial generator. The music is transformed into a sequence of linear drawings. The most exciting part of this process is the possibility to explore the generated spaces. Represented just by their linear frames, they allow full imagination of materialisation and possible functionalities of the generated spaces. The first stage of this research confirms that there does exist huge potential related to experimentation in form-generation based on music. It is completed entirely based on intuitive concepts, almost manually, without any parametric definition. The results are still in the domain of 'frozen', static form, represented by their linear appearance.

• Music Drawing Over Time Grid. Sound Drawing of Brahms, Hungarian Dances 10. Raewyn Turner 2002



Every object well contemplated, creates an organ of perception in us.

(Zajong 1993: 205)

NOTES

- 1 William Moritz, 'Abstract Film and Colour Music', in *The Spiritual in Art, Abstract Painting 1890–1985*, organized by Maurice Tuchman and Judi Freeman: 'the dream of creating a colour music for the eye comparable with auditory music for the ear dates to antiquity, but so far no universal technical formula had given it the durable, popular basis of the other art forms'.
- 2 Split Enz: The group was founded in 1972 in Auckland, New Zealand. Best-known for their early 1980s new wave pop hits, particularly 'I Got You'. Split Enz – after surviving a dizzying array of image and personnel changes and a full decade without any recognition outside of their homeland – became the first New Zealand band to achieve worldwide success. Although they never reached superstar status outside of Australia and New Zealand, the band developed a strong international cult following which continued to thrive over a decade after their breakup. Split Enz's output always seemed slightly outside of the times and often frustratingly obscure, but in the end, they left behind a body of work that was always interesting and often reached pure pop brilliance. [*Open Directory: Arts: Music: Bands and Music Online* 12 February 2003] <dmoz.org/Arts/Music/Bands_and_Artists/S/Split_Enz/>
- 3 *Four Senses Concerts* (1999, 2002) series of multisensory performances in Auckland, New Zealand. with the Aotea Youth Symphony Orchestra.
- 4 Botany Online: Plant Responses – Light – Photoperiodism – Stimulation of Flowering <<http://www.biologie.uni-hamburg.de/b-online/e30/30c.htm>>
- 5 Using the *World Book Atlas* (1986) World Books (Australia).
- 6 Using the *American Ephemeris Nautical Almanac*, Annual Publication (2002), 'Table of Sunrise and Sunset (local mean time)'.
- 7 Quoted from the collaborative paper by Mirjana Devatakovic Radojevic (2002), published online at:



<<http://www.generativeart.com/GenerativeArt2002.html> Generation Art 2002 pdf 28>

8 *False Emotions* (Guy Debord, 1978) exhibition concept by Gesine Braun, Munich, Germany, <www.false-emotion.de>

9 Barbara Sellers-Young, 3: 2, August 2002 *Breath, Perception and Action: The Body and Critical Thinking* <<http://www.aber.ac.uk/tfts/journal/>>

REFERENCES

- Classen, Constance (1998) *The Colour of Angels*, London: Routledge.
- Cytowic, Richard E. (1995) *PSYCHE, 2(10), Synesthesia: Phenomenology and Neuropsychology: A Review of Current Knowledge*, July <<http://psyche.cs.monash.edu.au/v2/psyche-2-10-cytowic.html>>
- Devatakovic Radojevic, Mirjana (2002) *Spatial Forms Generated by Music – The Case Study*, presented at the 5th Generative Art Conference, GA2002, Politecnico di Milano University.
- Doczy, Gy (1981) *The Power of Limits*, Boston, MA: Shambhala Publications.
- Grech, John (2002) *Beyond the Binary: New Media and the Extended Body*, Member's Forum, ANAT Newsletter No 49, Jun–Aug.
- Moritz, William (1986) 'Abstract Film and Colour Music', in *The Spiritual in Art, Abstract Painting 1890–1985*, New York: Abbeville Press.
- Richardson, Joan (1990) 'Another Reality Club', in John Brockman (Hg.) *Neue Realität*, Munich.
- Sherman, Tom (2002) *Before and After the I BOMB: An Artist In The Information Environment*, Banff: Banff Centre Press.
- Turner, Raewyn (2002) *Spatial Forms Generated by Music – The Case Study*, presented at the 5th Generative Art Conference, GA2002, Politecnico di Milano University.
- Zajong, Arthur (1993) 'Seeing Light – Ensouling Science: Goethe and Steiner', in *Catching the Light: The Entwined History of Light and Mind*, USA/Canada: Bantam Books, p. 205.