Breathing The Walls

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This paper comes about as a response to reading Architectural Body (Gins and Arakawa 2002). My initial reaction, which went something like “Wow, they are naming and describing what I’ve been noticing and exploring through my performative and meditative practices in recent years,” catalysed me to have a crack, myself, at articulating those perceptions of mine that illustrate, or at least resonate strongly with, the ideas presented in Architectural Body.

Ways of Seeing and Being

I have been working with the principles of Al Wunder’s Theatre of the Ordinary since 1997. Practitioners improvise movement, stillness, sound and silence while bringing their awareness to the subject of a given “score”. Scores used for accessing and playing with vision include “looking and not looking,” “direct looking, peripheral looking and ‘unsighted’ looking,” and “using ‘clear-sighted’ vision” (Wunder 2009: 154). “Looking and not looking” is a score that is often done in pairs, as a way of developing relationship between two improvisers in terms of orientation, spacing, and timing. In “direct looking, peripheral looking and ‘unsighted’ looking” awareness develops around how we choose to see others in the space – either by directly looking at them or by keeping them in the corner of our eye or by keeping them in our mind’s eye, as they go in and out of our field of vision. “Using ‘clear-sighted’ vision” is a way to encourage one to really see what one is looking at and to focus on it clearly enough to take in the details.
Being clear about what you are actually seeing is one of the best ways I know of bringing yourself into the present and allows for actions and reactions to occur in a more spontaneous manner. (Wunder 2009: 153)

Practicing these scores connects me as an improvising performer simultaneously with internal reality and external environment, placing me firmly within the immediate space and enhances my sense of presence, both for myself and for onlookers.

Through the Feldenkrais Method, which I first encountered in 1987, I have come to understand, on a somatic level, three major connections between neurology and movement: first, that the form of any movement the body would make already exists in the neurological impulse for that movement; second, in order to free oneself from restrictive patterns of movement one must examine the very moment when the thought impulse reaches the muscles and; third, visualising a movement (whilst not enacting it) is enormously effective in learning how to enact that movement in a freer way. Visualisation, non-judgemental observation and attention to the infinitesimal beginnings of movement have all played a part in the development of my practice.

Vipassana meditation, as taught by S. N. Goenka, has also had an influence on my life and practice, since 2005. The word vipassana means “to see things as they really are” (Vipassana Meditation Website 2010). As a practice, it involves observing sensations occurring throughout the body with an equanimous mind, neither craving pleasant sensations nor averting unpleasant ones.

When attention to bodily sensation is practiced in day-to-day life, this present moment awareness, or dropping into the moment, enhances my vision: things I am looking at become clearer, details more obvious, actuality more present. For me, this way of being is also linked to physiological changes. The muscles at the top of my neck relax, the occipital joint becomes more fluid, my breathing relaxes and I'm more aware of it. At the same time, I have access to creativity, playfulness, and a widening sense of possibilities. There is an inner stillness,
within which I can sense connection to what is forward and behind, above and below.

Taking this mode of awareness into performative practices, I discover there are options, many pathways. I'm connected in three dimensions, and can sense the spaces existing between myself and the walls, the floor, and the ceiling. I become attuned to my proximity to these structures, and can begin to play with the orientation of my body to their surfaces.

When I read Gins and Arakawa’s discourse on landing sites, particularly dimensionalizing landing sites [1], I found a parallel to my own personal experience. There is a quality of awareness that enhances my ability to perceive and map my relationship to my surroundings within the framework of dimensionalizing landing sites.

Sometimes, for example, I am acutely aware of the position of my head in relation to the surrounding structures. “A dimensionalizing landing site,” say Arakawa and Gins, “registers location and position relative to the body” (Gins and Arakawa 2002: 21). Whilst driving, for example, I become aware of the fact that my head holds a position in relation to the steering wheel, the windscreen, the whole car, and other cars – which are opening, closing or maintaining the distance that exists between themselves and my car. Then there are the trees, the road and signposts in the distance that are approaching as the (perceived) gaps between them are widening – as the angle, of which I am the vertex, between them grows. Focusing my attention on these shifting dimensional relationships encourages a tendency at first to hold my head more stationary and allow my eyes to move more freely within their sockets. This freedom of movement in the eye-sockets creates a sense of stability within me, a centredness that feels something like “I am residing within myself and looking out”.

I try it now, as I am writing this, at my desk, looking out the window. The stillness of my observation platform accentuates the movement of external objects (the swaying of a small palm tree, the billowing of the curtain). My
consciousness is not going out of myself to those things, rather there is this “residing within myself and looking out” that allows me to remain in-place and observe things external. While I maintain awareness within my body, I can sense and measure external changes in relation to my own bodily structures (positioning, shape), internal processes (respiration, salivation, blood circulation), and the physical and rhythmic relationship of those internal and external aspects. I notice the coincidence of internal and external events: an inhalation coinciding with a bird cry, a series of heart beats with a gust of wind, a minuscule movement of my tongue within my mouth with the creak of the tin roof expanding under heat from the sun. I feel part of a composition – a poetic, artistic event – within my immediate ecosphere.

This awareness of the coincidence between external and internal events loosens the notion of where oneself ends and the outside begins, perforating the perceived membrane of one’s limit of self, giving a felt sense of porosity. In *Architectural Body*, the character Robert says, “About kinesthesia … I feel all porous and it, kinesthesia, functions as that which animates porosity” (Gins and Arakawa 2002: 37).

When I sense my body in relation to the environment in this way, and begin to relate to the outside environment on a physical level, I free up the infinite possibilities of moving or positioning myself in relation to things. I also experience shifts in perception, and can see that viewpoints are mutable.

In *Tuning Fork: Shopfront*, an installation performance created and performed with Jondi Keane in 2008, I hold myself in various positions in relation to the architecture, allowing my body to find its own logic in negotiating the bodycontact-architecturalsurface-gravity interface, or I negotiate a spatial relationship between myself and a particular architectural feature from a distance using internal proximity and orientation sensors, and vision. Holding for a time these unconventional orientations builds a resonance that makes the configuration more apparent. This resonance imbues the body-environment configuration with a sited-ness. Like “ordinary affects,” these configurations are
“habitable and animate,” and give the sense that “something is happening – something that needs attending to” (Stewart 2007: 4, 5). And just as the apparition of an image on a Polaroid is the result of a chemical process, gravity too, acting on the body whilst holding in place these unconventional orientations, is a catalyst for an internal process that causes a shift in perception which allows an inner sense of sited-ness to occur, or to dissolve from the sensing of one site to the sensing of another. I imagine that the vestibular apparatus would also be playing a role in these perception shifts, as with each holding in place it could be undergoing a kind of recalibration into each new orientation, giving the sense of “arriving” at a new site. [2] Subtle displacements within, or of, the configuration then, either to myself or to my surroundings, are able to be read more distinctly, and become something like notes in a scale with which to improvise a tune.

Tentative Forming

Al Wunder’s definition of performing is “a person forming” (2009). The tentative questioning and moving within what is happening and what is about to happen that occurs in his form of improvisation as performance (which is based on finding at any moment what one likes, and then playing with or constructing moments following moments within and extending from that place of value) is a practice of figuring oneself out – “for part of being a person is to feel uncertain in regard to and tentative about what comes next” (Gins and Arakawa 2002: 45).

Tentativeness and uncertainty are the natural modes of being when one is in an aware state listening to that which is prompted by architectural surrounds, and responding with, as much as initiating, one’s own action-idea.

In Tuning Fork: Shopfront, Jondi Keane and I manoeuvre seven old wooden doors throughout the performance space. Balancing a door on one of its corners-points or edges, and teetering and shifting its weight between this corner-point or edge and an adjacent one, forms the basis of a little experimental game of tentative discovery around the nature of the door-as-object free from its usual functional
purpose and position in architectural space, its way of moving and being manipulated. I would approach a door, in a way, as if it were not a door, and to physically ask questions of, to play with, and to find what I enjoy in each particular moment about its shape, its weight, how it behaves under gravity, its solidity, its materiality, its inherent movement vocabulary, its proportion and relatedness to my body. Constructing a phrase of these micro-movements between door-on-corner-point, door-on-edge and supporting hand becomes a poetic composition in real-time choreography and a dialogue between physical body, spatial-body, architectural body, object, architectural elements and gravity.

Fig. 1: Tuning Fork: Shopfront, 2008 (author, left, with Jondi Keane). Photo: Suzon Fuks

Also in Tuning Fork: Shopfront, I-beams and columns form important landing sites for the building of strong dimensionalizing sites due, I believe, to the way they match our bodily proportions. The performers’ heads can precisely enter the negative space of an I-beam (vertical structural beams throughout the shopfront space), or find an aligning position against the side of a column (grey composite-board columns Jondi introduced to the site for the installation performance). In
doing so, imaging landing sites are created for onlookers because of the intermittent hiding and revealing of parts of the performers’ bodies.

Our tentative enquiry is amplified into larger scales of action/interaction in Tuning Fork: Drill Hall, where we lift, get underneath, move, reform and re-locate strips of the linoleum dance floor of Sydney’s Critical Path choreographic development space, the Drill Hall. Foregrounding the materials, objects, architectural structures, letting them have a life of their own, we lend them movement and form. The structures and materials become the “performers” and propose questions that pop up in our and audience members’ minds: How does that material move? How heavy is it? What will happen to the “human” performers if it collapses and traps them? Interacting with the material or watching from the outside, one realises that surfaces are not actually fixed. Their fixedness exists only in our minds because of the function that are “assigned” to them. When one un-assigns surfaces, structures, objects from their functions, they are open for interpretation, co-exist in a level playing field with the “organisms-persons” (Gins and Arakawa 2002: xix) they share the space with,

and, as Gins and Arakawa request, these surroundings become “defined together with the bodies moving within them” (xx).

![Fig. 2: Tuning Fork: Drill Hall, 2009 (author and Jondi Keane under linoleum dance floor). Photo: Suzon Fuks](image)

In the same performance, on a much smaller scale of action, Keane and I animate gold leaf, blowing it with hand-held paddles or with our own breath. It takes only the slightest puff for these super-fine membranes to float with a freedom of movement that extends the tentative into the unpredictable. We can call these actions procedural tools as “a procedural tool examines and reorders the sensorium” (2002: 30). The performance environment becomes “a tactically posed surround (which) fills an organism that persons with questions by enabling it to move within and between its own modes of sensing” (58). Questions such as: What direction will they take off in? How high will they fly? Will another unseen air pocket nab them off on a tangent? On what or whom will they stick? When will they land?
The movement of gold leaf allows us to “see” the very air itself; its volume, its relative weight and density, and its movement through temperature zones, made apparent, for example, when a single sheet of gold leaf swoops to spiral through the slipstream of air around a body, which is slightly warmer than the air in the room. And, like Gins and Arakawa’s proposed architectural procedures, the *Tuning Fork* actions, “always invented/reinvented on the spot, (…) exist in the tense of the iffy. Not a fixed set of called-for actions, (they are) a spatiotemporal collaboration between a moving body and a tactically posed surround” (2002: 73).

![Fig. 3: Tuning Fork: Drill Hall, 2009 (author, left, and Jondi Keane with gold leaf). Photo: Suzon Fuks](image)

**Perception Flip**

Our eyes, as a coupled side-by-side stereo-pair, feed us images from a mostly level-with-the-ground position. By looking at the world from an upside down
position for long enough, one can experience a shattering of this perception gridlock and see things afresh.

There happened a moment while performing *Tuning Fork: Shopfront*, when I found myself in a doubled-over position leaning against the plate-glass windows of the Judith Wright Centre of Contemporary Arts Shopfront space that face the street, in such a way that I could remain there for some time, looking upside-down out along the footpath. I was observing the feet of passers-by walking. At first, naturally, what I saw looked upside-down. Nothing unusual. But after some time my perception flipped, and I suddenly saw the movement in a completely different way. Now what I was looking at seemed like a right-side up image, with the footpath at the top, the awnings of the shops at the bottom and in between the legs of the passers-by reaching up to touch the ground. This fresh perspective gave me access to a rare reading through which I could see clearly the difference in quality and timing between the first half of each step when the foot is moving away from the ground, and the second half when the foot is moving towards the ground. I could see the way bodies act in relation to gravity. It was strange and fascinating, as if I was seeing walking for the first time.

**Virtual Body Proprioception**

I have partial disability of my left arm and neurological pain associated with nerve damage. Researching pain relief methods, I found a particular experiment immensely profound: the "mirror-box," designed by neurologist Dr Vilayanur Ramachandran, director of the Center for Brain and Cognition at the University of California, San Diego, used to alleviate amputees of phantom-limb pain. Observing the movement of my intact arm reflected in a mirror positioned vertically and right-facing on a table, I would perceive the movement of the reflected image to be the movement of my left arm. I would “feel” my paralysed arm moving again, along with a complete proprioceptive picture – perceived weight, joint articulation and position in space. A bizarre experience when I knew that in fact the immobile arm was lying flat on the table concealed behind a mirror.
Apart from the delight I had in re-experiencing these sensations after some absence, and the momentary cessation of pain during the exercise, what fascinated me most was that I was experiencing the illusory nature of perception – that our body image and proprioception are constructs in our mind’s eye, that may or may not truly reflect the movement, position or shape of our actual body. This dimensionalizing landing site of a “virtual” limb was fundamental to my further research into how awareness of body image within surround can fuel performative movement in connection with object and architecture.

**Projecting Body Image into Surfaces**

As part of my process to connect, on a neurological and cellular level, with the environment I am performing within, I have used a method of mentally projecting myself into and onto architectural surfaces. In the site-specific performance *Thanatonauts – Navigators of Death*, created with Igneous in 2001 at the Brisbane Powerhouse Centre for the Live Arts, I suspended myself in a fabric sling hanging from an old steel eye-let protruding from a rough-hewn wall. Against and facing the wall and remaining more or less stationary I focused my complete attention on the cracks, markings, and indentations in the surface of the wall, moving my attention slowly, millimetre by millimetre, along the length of the cracks in the wall. Doing this, I experienced a perception jump in terms of orientation and scale, so that it was as if I was flying above the surface of the Earth – looking down onto canyons, and diving down and flying through those canyons. Clear-sighted focus, coupled with the imaginary mental image (of flying), formed connections between my body and minute details in the texture of the wall. My body responded in minuscule and subtle movements to changes in direction or height of my perceptual journey.

**Other Performative Responses to Dimensionalizing Landing Sites**

A dimensionalizing landing site lands simultaneously narrowly and tightly and widely and diffusely, combining the qualities of a perceptual landing site with those of an imaging one, coupling and coordinating direct responses with indirect ones, the formed with
the formless. Attaching a grappling hook of a perceptual landing site to a vaguely sketched-in rope of an imaging landing site, a dimensionalizing landing site, in landing, hooks onto the environment to gain traction on it. With the hook-and-rope ensemble flung out and an availing surface caught hold of, there comes to be an as-if-tugging-back-to-the-body that conveys a sense of (kinesthetic) depth. (Gins and Arakawa 2002: 8)

In a choreographic research period in a local hall in 2003, I explored further the notion of connecting my mind-body to the architectural features of the room by first observing the lines and structures of the roof beams, skirting boards, and long uninterrupted wall surfaces. Imagining connections between myself and those lines, I would then configure my body in relation to those “landing sites,” while sensing, sitting within, or re-configuring the “dimensionalizing landing sites” that form in the spaces existing between my body and the wall, ceiling beam, and skirting board. These spaces are perceived as tri-dimensional geometric volumes bound by lines joining the outer extremities of my body’s surface and certain points (often joints) on the surface of the architectural structure. Any one of these volumes, emanating as they usually do from flat surfaces, terminate at my end in an organic form created by the part of my body currently protruding into it. Stillness and awareness allow these volumes to form, which are constructed within a series of “hook-and-rope ensembles” which have caught hold on multiple availing surfaces creating a tension – the “as-if-tugging-back-to-the-body that conveys a sense of (kinesthetic) depth” – within a volume. Movements I make within one of these said volumes, towards or away from the “availing surfaces,” expands and contracts the volume like the breath in one’s lungs. Furthermore, the action of breathing itself can be perceived as increasing and releasing pressure on the volume existing between body surface and architectural surface, which allows the architecture to seemingly seep in and out of a few layers of skin, like the exchange point between oxygen and blood in the lungs, creating a sense of breathing the walls.
Breath, Pain and Stillness

These perceptions of mine resonate with images presented in the imaginary conversation in Architectural Body about the extraordinary procedural house:

GIN: For a closer look at our effect on this house, let us each take a deep breath. The material expands and contracts as we do. (Gins and Arakawa 2002: 28)

And:

ROBERT: (...) But my attending to all this breathing . . . my solicitousness to my own breathing, would you characterize all that taken together as landing?  
ARAKAWA: Yes, I think so. I am thrilled that you came up with that. Linking breathing and landing . . . we hadn't quite gotten to that yet. (Gins and Arakawa 2002: 38)

In the teaching method developed by S. N. Goenka, and based on the written teachings of Gautama Buddha, a preliminary stage to Vipassana meditation is Anaparansa, a way of developing mental focus and awareness by observing only the breath. Focusing on one’s breath is a crucial step in developing the ability to observe and recognize any sensation in the body “as it is,” no matter how fleeting or long lasting, how subtle or gross. This as-it-is-ness is vitally connected to Gins and Arakawa’s notion of landing sites:

Designating the “coming alive” for sentience – as sentience?! – of anything whatsoever, including even the most fleeting sensations, a landing site is but a neutral marker, a simple taking note of, nothing more. (Gins and Arakawa 2002: 6)

In the practice of Vipassana, as the mind becomes more focused, subtler and subtler sensations are observed, until large portions of the body are perceived as subtle vibrations en-masse. An idea reflected, as follows, in the imaginary conversation I previously referred to:
ARAKAWA: If the contact feels continuous, then you have probably joined several smaller tactile landing sites into a few large ones (Gins and Arakawa 2002: 36).

Opposite the scale of vibration, a sensation equally worthy of a “simple taking note of,” is pain. I have a lot of experience managing pain in my body (mostly neurological pain resulting from nerve damage in my left shoulder). The mind’s first and natural response to pain is aversion: trying to “run” from pain, avoid it, writhe, or wriggle free. Being able to simply be with it, to sit with it, to look at it, and experience it for what it is, takes practice, awareness and the decision to do so. This mental act alone reduces the hurt of pain by half, but also forces the body-mind to be still. From this stillness things can be perceived more clearly, objectively.

Directly evolving out of my experience with pain, and also searching for experience of simply being, I initiated an ongoing project in 2007 involving remaining deliberately still for extended periods of time in a range of wilderness, rural and urban locations. These stillnesses offer a counterpoint to the rush of contemporary life, a way of being in the present moment which draws attention to the life in and around me: from momentary flickerings to patterns of change that occur on large scales and over long periods of time.

Remaining deliberately still I feel part of a bigger whole, part of the environment. I experience a kind of objectivity and can sense the life and movement of trees, the weather, and time. In urban environments I perceive more clearly the mechanisms of the city – traffic, commuting, and the constant ongoingness of human activity – the rhythm of which, although perceived over considerable real-time, presents itself in my perception as something condensed, like a time-lapse movie – a collapsing of timescale and a transposition of the past into the present. These deliberate stillnesses might be considered tactically posed approaches (rather than surround), akin to “tentativeness-cradling procedure: a tactically posed surround (…) built in which the holding of scale itself, surely basic to all holding in place, doesn't hold” (Gins and Arakawa 2002: 76).
If the body can yield answers through that which it subsists as, through the whole of itself, inclusive of its sequences of actions and the surroundings into which, in a variety of ways, it extends itself” (Gins and Arakawa 2002: xv)

then an awareness through a body-mind that is acute and tuned to listening to utterances offered by architectural/environmental surrounding is ready to receive and respond to questions that would be offered by “tactically posed surrounds,” and looking at it from the other way around, an aware body-mind can assess what is the present state of impact or impression of the current surroundings, what questions need to be asked, and what architectural or environmental alterations need to be made (or what alternative surroundings can be tactically posed) to better serve us organisms-persons.

On the subject of being an organism-person, I see that as I go into what is the nature of myself as organism, feeling-sensing my body in present-time, breathing my internal and external simultaneously, extending my awareness inward and outward to reach and include my surroundings, I am driven to person in ways
completely contrary to the ways I am familiar with personing, and I am free, momentarily, dramatically, from “long-term association (...) with behaving as a person” (Gins and Arakawa 2002: 1) that myself as organism has had. New found ways of personing that follow include stillness, experimentation, impulse, intuition, flowing with, composing, linking with architectural features, leaning into, holding and leaning away from, fitting in to negative spaces, balancing and teetering. “Organisms that person need to construct their hypotheses and enter them, surrounding themselves with ordered presentations of their suppositions. Our claim: architecture can help a person figure herself out.” (Gins and Arakawa 2002: 44). I agree and add: a person who has gone some way in figuring herself out can help to figure out her architecture.

In Tuning Fork, through the use of rods, I began interacting more directly with the volumes in space between surround and myself. Taking a bunch of 3m-long carbon fibre rods, I find ways to distribute my body weight into the rods, floor and wall, or window, or step, or whatever surface-point the rods terminate at. By allowing weight and movement to be distributed into the rods, and extending my attention out through the rods, I am able to experience tactile landing sites remotely, that is, from a distance of up to three metres, and, as “tactility and kinesthesia toggle-switch into one another” (Gins and Arakawa 2002: 37), in effect have the sense that my body or self actually traverses this distance, or that there is a co-joining of self and surround, within and throughout the body-object-architecture configuration.
An evocative example of how neuroscience posits this notion of the architectural body and the perception of the space can be garnered from neuroscientist Paul Bach-y-Rita, whom Norman Doidge quotes in his book on neuroplasticity, *The Brain that Changes Itself*. In referring to the way a blind man might use a cane to gain information about his environment, Bach-y-Rita says:

> he sweeps it back and forth, and has only one point, the tip, feeding him information through the skin receptors of the hand. Yet this sweeping allows him to sort out where the doorjamb is, or the chair, or distinguish a foot when he hits it, because it gives a little. Then he uses this information to guide himself to the chair to sit down. Though his hand sensors are where he gets the information and where the cane ‘interfaces’ with him, what he subjectively perceives is not the cane’s pressure on his hand but the layout of the room: chairs, walls, feet, the three-dimensional space. (Doidge 2010: 15)

Bach-y-Rita’s developments in the study of neuroplasticity test how eyes, as sense organs, can even be replaced by video image signals that are transcoded...
into electrical impulses and transmitted to the nervous system through sensors on the surface of the skin. Bypassing entirely the eyes, these impulses are correctly interpreted directly by the visual cortex in the brain as moving images, confirming Bach-y-Rita’s statement that “we see with our brains, not with our eyes” (Doidge 2010: 15).

A vast opening of the field of awareness that is simultaneously outside and inside my body, initiates a sense that my entire self is a sense organ, a porous membrane through which placements and movements of the environment are received or imprinted or, through the act of noticing, sited. Could it be that the environment lands on sites that exist within one’s realm of perception, that the landing is a cognitive process, that landing sites exist in the brain? But considering that the body’s nervous system as a whole is a receiving device, and that the status of information is being fed by shifting, changing external factors, the perceived self could be considered a constantly morphing entity that includes the body, the space, the environment, all in a continuous state of configuration and reconfiguration.

Arakawa posits that

> [t]he body has a spherical kinesthetic-proprioceptive-tactile dispersive potential” and that “each of us becomes an everywhere evenly distributed agent.” (Gins and Arakawa 2002: 35)

Although I go along with this notion of self-dispersal, and accept the possibility that we reach “everywhere” and that “everywhere” reaches us (even in “homeopathic” doses and with vast degrees of separation), I would suggest that the body’s interface with the “everywhere” is not spherical but shaped otherwise, and that our distribution is not so much “even,” but weighted more towards our body, our immediate vicinity, and our perception. We can change our immediate vicinity and we can develop our perception, reforming our sense of self to include what exists in contact with and beyond our body in order to better be able to ask questions of our surroundings and to hear and respond to the questions our surroundings pose of us.
To sum up, states of awareness found through mind-body practices such as meditation, performance and movement-based improvisation have put me in touch with a web of connections my body holds in relation to environment, bringing landing sites into focus. Through applying mechanisms of awareness in performative action, I have found increased access to creative responses, the ability to connect in present moment to the relationship of internal processes and external surround, enhanced presence and a sited awareness of “the embodied texture of the self and its weave into the world” (Ednie-Brown 2009). Looking directly at details in my environment while maintaining awareness of sensation within my body affords a framework to responsively play with, an embedded-in-self surroundscape through which to dance, and a way of breathing the walls.

Notes

[1] Dimensionalizing Landing Sites: Defining features (perceptual landing sites), plus all the imaging that bounces off that which surrounds a person (imaging landing sites), plus guesses and judgments as to how elements of the surroundings are positioned (dimensionalizing landing sites) fabricate a world or suffice to map one (Gins and Arakawa 2002: 8).

[2] The way the vestibular apparatus functions is explained in detail by Norman Doidge in The Brain that Changes Itself. In short, “The balance system gives us our sense of orientation in space. Its sense organ, the vestibular apparatus, consists of three semicircular canals in the inner ear that tell us when we are upright and how gravity is affecting our bodies by detecting motion in three-dimensional space.” (Doidge 2010: 3)

Bibliography


