

"What if " Art & Weightlessness

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Pronouncing the word "weightlessness" immediately triggers the notions of joyfulness, pleasure, freedom. Free floating or flying, being able to be "up against the ceiling", that is: occupying the whole of surrounding space, truly existing in three dimensions. Or, stated differently, freedom from gravity.

One of the four fundamental forces in the universe, gravity is everywhere. We are entirely (physiologically, psychologically, emotionally and culturally) framed by it. Gravity cannot be suppressed; only its effects can be cancelled under certain conditions. The scientists use the more appropriate word of micro-gravity, which describes the *physics* and the reality of the phenomenon.¹ In this paper, however, I shall use the term weightlessness to name an *environment* that includes —and shapes— human perception in all its dimensions: physical, intellectual-conceptual and emotional.

Weightlessness is a new environment, a new *milieu* for us, both "natural" and "artificial". It is "natural" in the sense that it belongs to the fundamental laws of physics but also because it has become part of our *Umwelt*. We have expanded our world, our "territory". At least, the orbit where the Space Station is located, 400 kilometres away from (and around) the Earth, is an environment that we *inhabit*, not only physically (as the astro-cosmonauts do) but totally, with our cultures, imagination and imaginaries.

However, weightlessness, far from being this total freedom, is a dangerous and demanding environment that we cannot access with our "naked body" but only through our technology: the exoskeleton or cocoon of a spacecraft, a space suit or a plane in parabolic flight² that expand and protect our body. It is in this respect that it is "artificial": for humans, weightlessness can only be lived through and within a human-made shelter or skin. Floating freely in the air, one must bear in mind that there is no air breathable outside of the shell of the human-made spacecraft, not only a habitat but a true "life support system". For our technological-computer-biotech environment, we have

¹ Even in the space station, there is no strictly speaking "zero" gravity

² For a description of what a parabolic flight is, see the article by Denis Thierion at: http://www.olats.org/space/colloques/artgravitezero/t_Thierion_en.html

invented the words and notions of "cyborg" and "post-human". Weightlessness, to a large extent, relates to them.

Weightlessness brings in a new phenomenology and a new mindset. Artists have started to chart this territory. So far, about forty artists or groups of artists throughout the world have produced art pieces in/with micro-gravity.³ They are works *for* this environment, building upon its properties and possibilities, exploring its potentialities and reflecting upon life in this kind of habitat. They are also *about* micro-gravity, that is: a transmission to an audience, through artworks "on the ground", of something it hasn't experienced. They are also works that push against and open up the boundaries of their own genre, playing around with the old scientific basics: "everything considered equal, what if we cancel the effect of gravity", as working in/with micro-gravity is also, if not more, (re)discovering gravity.

3D objects in a 3D environment: when objects have movements of their own

In micro-gravity, there is no need for a point of support—you are your own anchorage so to speak—and no privileged point of view. This is a fantastic terrain for sculpture. Throughout the 20th century, sculpture has tried to escape its own restrictions by moving away from the pedestal or including multiple viewpoints as in for instance Calder's *Mobiles* or in the works by Pevsner, Moholy-Nagy or Schöffer who allow to "see through" the sculpture and insert the space around within it, or by incorporating movement into a static object, like in kinetic art.

The *Cosmic Dancer* by the American-Swiss artist Arthur Woods has been sent to MIR Space Station in 1993. 35 x 35 x 40 cm, the *Cosmic Dancer* makes sense, as a sculpture, in weightlessness. Without any specific point of support and hence viewpoint, it can be apprehended from any "side", revealing its multiple forms. Its sharp angular shape strongly contrasts with the surrounding environment where everything is "round": the station modules, the portholes, the Earth. Its bright yellow and green colours oppose the greyness of the Station and recall those of Earth's nature.

³ Most of the works have been done based of experiences in parabolic flights, very few works have actually been done or sent to orbit in the Shuttle or the Space Stations. For an overview of the different projects, see my article "The Reason for a Symposium" at http://www.olats.org/space/colloques/artgravitezero/t_Bureaud_en.html#6-origine

Prisma by French artist Pierre Comte was sent on board the ISS/International Space Station in 2001 where it remains to this day. This completely articulated sculpture consists of 14 coloured spheres (primary colours) measuring 2.5 cm in diameter, linked by metal rods. When folded, its size is 24.5 x 12 x 2.5 cm. In weightlessness, *Prisma* becomes a fully kinetic, tactile and playful object. It acquires total freedom of movement and deploys itself in every direction.

The *Cosmic Wind Bell* by Japanese artist Takuro Osaka, which could be experienced during a parabolic flight in 2001 is a sphere composed of metal strings at its meridians that leave empty the rest of the surface and allow view of small opaque metal spheres within that produce delicate sounds when they move freely in micro-gravity. Rooted in Japanese culture, the *Cosmic Wind Bell* expands on traditional instruments.

Although very different, those three projects raise common questions about art and weightlessness. What (new) forms could/should it have? *Prisma* and the *Cosmic Wind Bell* are both based on the sphere, the most obvious shape in weightlessness, whereas the *Cosmic Dancer* is exactly the opposite, showing the dialectic relationship of an art exploring a new context while relating strongly to its origins. All of them inscribe themselves within the conditions of a space habitat and environment—they are rather meaningless on the ground—and, as such, can be considered works *in situ*. They all include playful and peaceful components that are meant to please and entertain the astro-cosmonauts, their first audience. But at the same time, they convey to us, through video documentation (that can be artworks in their own right), the awareness of this new "nature"; the most striking thing here being that objects, which are not robots, can have movements of their own, even if these movements are not intentional. It is in this respect that the comment of cosmonaut Alexander Polischuk about Woods' sculpture is to be understood: "and that it is a "Cosmic Dancer", the English title says, we have never had any doubt. Particularly interesting it was to dance with it to music. Dancing is meant symbolically as we circled around it and it too moved freely as it wanted and it looked like it circled around us for some reason".

Away from the canvass

Painting without a canvass, in 3D, pushing further some of 20th century trends in painting that went "beyond" the surface of the canvas and its frame – that is the research of many artists. American artist Frank Pietronigro pushed it to its limits in his *Project 33* undertaken during a parabolic flight in an American plane where he painted without any support. He writes: "I tethered a creativity chamber (made out of transparent plastic sheets), in which I would paint, to the interior of the jet. I filled pastry bags with acrylic gel and marked them with codes to identify content. These pastry bags were used rather than brushes to project paint into space because I was not painting on any support and I needed to project the paint out into the space rather than apply it on a surface". For this project, he coined the term "drift painting" in references to the Situationists and to Jackson Pollock's dripping. It is worth noticing that this work is at the crossroad of performance and painting. What remains are the traces (on his suit, shoes, and on the "walls" of the chamber) of the work that occurred in 3D and time, during the 45 parabolas of that flight.

Embodying micro-gravity and the memory of gravity

People are mainly fascinated by weightlessness due to its effect on the human body, its movements, its perception. In weightlessness there is no up and down; that is, no pre-determined point or plane of reference. All persons have to re-create and redefine their own system. The movement, once started, flows in an endless continuity and fluidity. Touching any surface just means to be repelled by it. There is no possibility of long-term "contact" unless through grappling or attaching in some way or other. The loss of gravity brings in a loss of perception of one's boundaries.

Two works relating to the body are of particular interest from my point of view as they show to two opposite aesthetical approaches and two different and complementary ways of dealing with weightlessness. They are those by Kitsou Dubois and Marcel.li Antunez Roca.

The French choreographer Kitsou Dubois is the first artist to have experienced weightlessness, back in the early 1990s. Since her first parabolic flight, she took part in several others (in France and Russia), pursuing and enriching her research. So far, she has created three choreographies (*Gravité Zéro*, *Trajectoires Fluides* and *Analogies*)

and four installations. Catalan performer Marcel.li Antunez Roca took part in the 2003 parabolic flight organised in Russia by the MIR Consortium⁴ during which he did the micro-performances *Dedal* and from which he created the videos-performances-lectures as part of his larger project *Transpermia*.

Kitsou Dubois inscribes herself within contemporary dance issues and explores its languages *informed* by weightlessness, revisiting the fundamental gestures and movements of dance in a dialogic approach. She looks for and deals with an *embodiment* of weightlessness in the dance, on the ground, which she particularly achieved in *Analogies*, her latest performance created at the end of 2004.

In *Analogies*, weightlessness is no longer an "outside" representation but an "inside" expression: inside the bodies of the performers and within the show itself. This is the result of Dubois' creative process and long-term research and rooted in all the components of her choreography among which the continuity of the movements (as in weightlessness); the nature of their genesis (no longer based on strength, force and virtuosity but by modifying the way the performers use their points of support, by strongly paying attention to where and how a movement can circulate in the body from a given point of departure); the confrontation of the physical bodies of the performers on stage to their image (in large projections) in analogous environments (underwater or on the trampoline); and the stage design that is based on "roundness" and the oblique and allows the movements and choreography to exist in all the directions and dimensions. This creates a destabilisation and a loss of references for the audience (similar to the one when being in weightlessness for the first time) that has to rely on its inner perception to *feel* weightlessness more than it *sees* it.

Kitsou Dubois' aesthetic is minimalist and abstract and at the same time very sensual.

On the opposite is Marcel.li Antunez Roca whose aesthetic is exuberant, almost baroque and based on the grotesque, the burlesque, the exaggeration. Whereas Dubois is working on the void, Antunez Roca emphasizes the shell, the necessity of an evolution of the body by/with technology. He proposes a new Utopia that he calls *Transpermia*. The panspermia theory is the hypothesis that life originated millions of years ago from some cosmic body that collided with the Earth. The notion of *Transpermia*, that he coined, is about returning to where we come from, in an evolutionary process that involves technologies. In his 2003 micro-performances aboard

⁴ http://www.artscatalyst.org/projects/space/Space_MIR_INDEX.html

the Ilyushin-76 MDK, Antunez Roca worked with two exoskeletons. One was the *dreskeleton*, worn closely to the body, which triggered screen projected images according to movements of the performer. The other was *Requiem*, a rigid, heavy metal robot of which the movements are pre-programmed and that in turn moves the performer's body inside it. *Requiem* can be seen as a *memory* of gravity within a weightless environment.

Dubois' and Antunez Roca's works are two faces of the same thing: the recognition that weightlessness is something that is "part of us" and of our future.

Art in weightlessness echoes many of the issues raised today in other fields of contemporary art and theory, not to mention its relations to concepts and projects belonging to 20th century art history.

It relates to cyberspace where, as well, there is no privileged direction, point of reference or hierarchies but where one has to invent other means to find ones way. But unless in cyberspace weightlessness can be physically inhabited.

It builds upon and expands the prosthetic/expanded body discourse.

Dealing with the perception and idea of a "wholeness", a globality, the relation between the space within and around ourselves, it inscribes itself within the shift of the limits of the self and of the human body, between an "inside" and an "outside" that is to be seen in works of telepresence, but also in current trends in smart architecture and clothing.