

# From *The Technological Herbarium* (2) - *Osmose* by Char Davies

Gianna Maria Gatti  
gatti.gm@virgilio.it

**Note:** Later in 2009, the AVINUS Verlag/Press of Berlin (<http://verlag.avinus.de/>) will publish Gianna Maria Gatti's book *The Technological Herbarium* in both English and German editions (the original book is *L'Erbario Tecnologico*, Bologna, Clueb, 2005). The Italian-to-English translation is by Alan N. Shapiro, and the Italian-to-German translation is by Dr. Helene Harth. The first of three excerpts from the book has been *Telegarden* by Ken Goldberg); this excerpt is on *Osmose* by Char Davies, and the next to be published will be on *Interactive Plant Growing* and *Trans Plant* by Christa Sommerer and Laurent Mignonneau.

## ***Osmose* by Char Davies**

To enter inside a tree and exit it through the leaves after having participated in its process of chlorophyllous photosynthesis: this is one of the many journeys that Char Davies makes the user of *Osmose* experience in an immersive, interactive, and multisensorial virtual reality environment that was developed and produced in 1995.<sup>18</sup>

Integrating three-dimensional images realized in computer graphics with localized stereophonic sounds, Davies constructs twelve worlds in which it is possible to immerse oneself and move around wearing a Head-Mounted Display that allows a stereoscopic vision, and bands that encircle the chest. There are no gloves, joystick, trackball or other manually easy to manipulate interface in so far as the interaction is based exclusively on breathing and on the balance of the person: by inhaling one rises, by exhaling one goes down, by bending forward one moves forward, by bending backward one draws back. A certainly original methodology of immersion, inspired in Davies by being an underwater diving expert, but above all dictated by the will of the artist to overturn the conventional and most widespread approaches and representative solutions usually adopted in the works of virtual reality of those same

years, not only from the point of view of use, but also from that of the spatial, visual and sonorous elaboration of the contents.

One of the principal objectives of Davies is to extend the potentialities guaranteed by three-dimensional computer graphics, to propose an expressive and aesthetic alternative founded on a different sensibility of interaction in real time. *Osmose* intends to create “a space that is 'psychically innovating', one in which, to quote Bachelard, participants do not change 'place', but change their own nature... we hoped they would then emerge from the virtual world to experience the real world in a fresh way, reawakening a fundamental sense of their own 'being-in-the-world'.”<sup>19</sup> Not to transpose the real world into the virtual, which we already know and live, trying to recopy it faithfully as one finds in the majority of works of virtual reality, which in this way highlight the capacities of the technical media, almost celebrating them: Davies wants to go beyond this mimesis, beyond the excessive photo-realism that, resting on the Cartesian configuration of space, imposes very neat boundaries between subject and object, between the user-agent and the world in which he acts. Davies recomposes the dichotomies between subject/object, self/world, mind/body, breaks up the borders to recover the uniqueness of the living being, emphasizing the ambiguity of spatial relationships, proposing an evoked and not realistically represented nature, inserting suggestive rather than explicitly illustrated elements, capable of stimulating the mind of the user - the 'immersant' as Davies calls him - to the most varied and personal associations, but also to a new vision of things and of himself.

Before introducing him into this new reality, the artist compels him to face one last time that which metaphorically expresses the conditionings of the vision within which Western thought moves: a grid of Cartesian coordinates, base structure of the spatial three-dimensionality on which the virtual world created in computer graphics is normally organized, which extends to infinity in all directions and which constitutes entry to the environment in *Osmose*. A sort of obligatory passage of which to be aware in order to liberate oneself from that rational organization of representation of the world to which it sends one back and proceeds beyond. At the first breath, in fact, the grid begins to melt in a fog that soon fills itself with organic forms similar to leaves announcing in advance the entry into the forest. When the grid vanishes, the user can abandon himself to experiencing a different relationship with the environment that is enveloping him and that is revealed as natural. From the forest to the clearing, from the roots of a tree to the inside of a leaf and then down, sinking into a pond, up to the deep oceanic abyss and to the subterranean mineral and rocky world to then rise

again to the most opaque clouds: nature is evoked in all its dimensions, in all of its physical states while the user is free to travel all over it, explore it, and merge with it.

Above and below these natural environments, Davies sets up two particular world-spaces, one of texts and one of codes – respectively defined as *superstratum* and *substratum*; in the former flow quotations and excerpts from philosophers, poets, and artists like Bachelard, Heidegger, Thoreau, and Rilke regarding technology, the body and nature; whereas in the latter informatic instructions, the binary code, software developed specially for the work, dominate. Letters and numbers function in Davies' intentions as a conceptual parenthesis englobing the entire work, the theoretical deepening and the technical apparatus which have led to the formation of *Osmose*. The critic Mark J. Jones, commenting on the large green phosphorescent figures which one sees all around during the immersion, speaks of them exactly as of DNA, of a supporting structure on which all the rest is constructed.<sup>20</sup>

The fifteen minutes of immersion terminate with *LifeWorld*, which symbolically represents the ensemble of all the worlds: if while surfing it allows the user reenter some already visited spaces, now it inexorably accompanies him to the exit with a slow advance that strengthens the sense of detachment, that reveals the impossibility of turning back, maybe to make better use of the time at one's disposal. The most frequent reaction of those who have experienced the work is to have felt a sense of loss there: many have made the association with the conclusive moment of the crossing from life to death, profiting also from the exorcising of fear that derives from it.

*Osmose* is a “soft, organic... vegetal and meditative world”<sup>21</sup> where each figurative solution, in color and sound, is conceived to instill in the user the impression of continuity, of envelopment, and of transport.

Davies' team operating in Softimage worked especially on the three-dimensional representation of the environments, developing a solution based on semi-transparent luminous and fluctuating textures of particles, decidedly alternative when compared with traditional solid polygonal blocks. The structures elaborated by *Osmose* make it possible to delineate world-spaces according to fluid and ambiguous forms, which bring to mind natural references but without describing them in detail, world-spaces “represented poetically, in terms of their implicit, interior qualities rather than phenomena outward appearances.”<sup>22</sup> A representation hovering midway between the figuration and abstraction where the contours of elements relax to combine with the successive images. The transitions between world-spaces follow one after another with delicacy: before dissolving into each other, they carry out translucid super-positions which allow the environments to co-exist and to simultaneously be lived. Fundamental

for the production of all these effects are the chromatic components that to the decisive colors and to the strong contrasts oppose degrees of tone mostly playing on the 'terrestrial' tones of green and brown; and the sound, carefully matched with each image, each zone, spatially multi-dimensional and interactive: the position, direction, and speed of the user determine their development. On the agreeable melodic background are inserted motifs that evoke the natural sounds of water or else birdsong, frogs croaking, insects buzzing, according to spontaneous mental associations; in reality all of the sounds are the fruit of a complex and variegated digital sampling of phonetic emissions produced by two solitary human voices, one male and one female.

Particularly highlighted within the indefinable and changing world of *Osmose* is the only element more easily identifiable as a figure in itself: a tree, a large and old oak. It stands isolated at the center of a clearing, an open and welcoming space cut out in its turn at the center of the forest: "A symbol of life, fertility, and regeneration in almost every culture," asserts Oliver Grau, "the tree's iconography can be traced through all cultures and epochs. Now it grows here: the tree of virtual worlds. Looking down from the top of the digital tree, in which the biological process of osmosis is mysticized, aureoled, and merged with the technical images, the tangled network of roots appears to resemble a distant galaxy, yet as the observer approaches, it evokes a microcosmos."<sup>23</sup> It is a crystalline tree whose trunk, branches, and leaves emanate a strange luminescence that reflects its rays in the pond nearby: coming closer the user discovers that it is not made of solid material, on the contrary, the fluid transparency of the bark is an invitation to go through it. He starts in this way his complex voyage inside the tree. Through the lymphatic canals he reaches the foliage and penetrates the microcosmos of a leaf: here he discovers its internal structure, made of grainy branches, here he participates in the enveloping and dynamic flowing of a multitude of humid green molecules intent on carrying out the process of photosynthesis.<sup>24</sup> A suggestive experience that interprets the physiological dynamic vegetables neither from a scientific point of view nor for a didactic purpose: it grasps them above all in the appearances of the easiest identification by the collective imaginary in order that the user, right away recognizing the context in which he is immersed, experiences them in full consciousness of their interior.

The spectacularization of the proposed moments, which draw on a few solutions from fantasy, help to increase the emotional involvement of the person, who already finds himself experiencing an impossible condition in real life: to be part of the biological processes of the tree, to feel within oneself the intense vital activity of

vegetable nature, normally concealed behind solid and compact forms, like the trunk, the branches, the leaf itself, by apparent inertia.

The identification on the part of the user in this world so distant from his is reinforced by the fact that Davies deprives him of the possibility of moving or intervening in the environment and on surrounding things by resorting to the use of the limbs, as rather belongs to the human condition. Not being able to walk, not being able to act with his hands, but having to base himself exclusively on the breath and on balance to carry out any kind of movement, the user is brought to experience a 'vegetative' state. This situation allows him, on the one hand, to be on the same wavelength with the nature of *Osmose*, on the other hand, to reappropriate his body as an undivided entity, engaged in its totality in moving, expressing itself, relating to others: "This reliance of breath and balance is intended to re-affirm the role of the living physical body in immersive virtual space, as subjective experiential ground. It is also intended to act as a channel of communion rather than as a tool of control. As in meditation, the practice of following one's breath and being centered in balance opens up a profound way of relating to the world."<sup>25</sup> Davies proposes this radical alternative to the usual methods of surfing in virtual reality, to reaffirm the priority of 'being in the world' compared with 'doing' things in it or to it. Through 'body-centered interfaces' the artist wants to encourage the person-agent to concentrate on himself because the exploration and knowledge of the virtual world occurs only if one has acquired sufficient mastery of one's own physical and mental capacities: regulating respiration, balancing the movements of the chest availing oneself of the center of gravity, finding the right equilibrium between speed and strength, but also adopting a tranquil and meditative attitude, since brusque, rapid or aggressive rhythms do not have a positive effect but turn out to be ineffective.

The user is obliged to learn to 'live his body' and to relate himself with the exterior making exclusive use of the body, according to modalities which by now no longer belong to him. Man, in everyday life, rather than contemplating, is used to acting, resorting to tools extraneous to the body which extend its faculties, but which at the same time, according to Davies, aim to reduce its centrality, substituting itself for the direct relationship and reinforcing the desire for control, for domination over things. An outcome which increases in those virtual reality environments where joystick, gloves, and other interfaces of the manual kind encourage action, sensory-motoric behaviors, prehensile ability - touching, manipulating, making gestures - the exercising of power over elements encountered, privileging beyond this only one part of the body: "Whereas in conventional VR, the body is often reduced to little more than

a probing hand and roving eye, immersion in *Osmose* depends on the body's most essential living act, that of breath - not only to navigate, but more importantly - to attain a particular state-of-being within the virtual world."<sup>26</sup>

The recovery of the body, of self-consciousness, by Davies starts with the breath, fundamental and primary act of life, habitually reduced to an automatic physiological gesture, which if in reality relates the 'inside' of the person with the 'outside', in *Osmose* becomes the triggering factor that determines the varying of images, spaces, and sounds of the itinerary.

For Derrick de Kerckhove, who comments on *Osmose* projected as a video in Milan during the conference "Landscape in Motion - The Generation of Images" in 1998, Davies' work succeeds in defining its own meaning of interactivity through the brilliant metaphor of the breath, a metaphor invoked "fundamentally in order to understand the sensorial change that is occurring in our life and times." To explain this proposition, De Kerckhove goes back to Greek antiquity and suggests an original combination between the importance given to the breath in that epoch of human history, origin of Western civilization, and contemporary interactivity, both grasped in their faculty of allowing man to acquire all of his experiences: "For the ancient Greeks, breath was the point of perception of the word, of hearing, of the other. For the ancient Greeks, visual perception, before the alphabet, was also not in the brain but in the *frenes*, the lungs, and one 'breathed' the experience. When the alphabet was invented, there was a verticalization of experience that passed from the *pneuma*, the breath, to the *psyche*, the soul – a moment of separation between the body and the world. This point of view creates a distance between the subject of the perspective and the object that is the perspective. The pre-literate breath of the Greeks operates an exchange with experience, and electronic interactivity is a return to this kind of dynamic."<sup>27</sup>

*Osmose* is a journey in solitude, avoiding distractions, intensifying individual experience in the virtual space, so as to better 'discover oneself' and feel free to merge into another state, that which is naturally prevalent, without interference. As Mark Pesce asserts: "What you encounter in *Osmose* is yourself – your sense of beauty, of wonder, of communion is brought out."<sup>28</sup>

The only other human presence planned by Davies within the work manifests itself at a subliminal level, in the form, in other words, of the voices which make up the sound base and which follow the user everywhere on the journey. To these invisible escorts are added some external spectators who, in a specially equipped dark space, can participate indirectly in the interaction, wearing special polarized glasses: a screen shows them the audio and video stereoscopic projection of the world-spaces of

*Osmose* as the users see them in real time; through an opaque glass, one discerns the silhouette of the user himself while he is moving. The public can directly grasp the connection between his gestures and the respective visual and sound changes of the different virtual environments in which he finds himself immersed: on the one hand is shown the centrality and importance of the human body, on the other hand the manifestations of nature.

Nature is in fact, together with the body, the other dominant theme in *Osmose*: nature unfolding on various levels, so that the user can gain from it a complete vision, including, beyond the terrestrial, also less accessible or totally impossible spaces, and organized around a tree, whose symbolic role of natural vitality is underlined by the central position occupied in the general architecture of the work.

The emphasis and the configuration that Davies gives to nature derives from personal biographical events: being brought up in the boundless territories in northern Ontario, where nature is immense and enveloping, especially for someone who lived in isolated inhabited spots; being an explorer of the marine depths, an activity that privileges the singular and solitary relationship with the aquatic kingdom. In *Osmose* this deep link established with the natural world gets transferred, repositing in virtual mode her experience and knowledge of landscapes in which she has lived and still lives, in which she is immersed, to share them with other people, in a way that they too experience feeling as if they are part of nature.

Only by availing herself of virtual reality can Davies make it so that nature and human being entwine and establish an osmotic form of relationship and interaction – according to the physiological definition of the term, passage of fluids across semi-permeable membranes: the impression of the user is that each body, including his own, loses consistency in such a way as to be able to be indistinctly crossed and to cross those circumstances, in a reciprocal integrating with each other, going beyond fears and individual limits.

“In my work, I’m attempting to reaffirm the role of the subjectively-lived body. Rather than deny our embodied mortality and our material embeddedness in nature, I seek, somewhat paradoxically through a highly technologicalized art form, to return people to their bodies and to the earth by using VR to refresh their own perceptions of an embodied being-in-the-world, to return them to a perceptual wonder at being here.”<sup>29</sup>

18 - *Osmose* was exhibited for the first time in Montreal in 1995, on the occasion of the “Sixth International Symposium on Electronic Art (ISEA '95)”; in Italy, it was

presented as a video at “iMage, Festival internazionale di architettura in video,” Florence, December 1998.

## Notes

19 - C. Davies and J. Harrison, “Osmose: Towards Broadening the Aesthetics of Virtual Reality,” in *ACM Computer Graphics: Virtual Reality*, Vol. 30, n. 4, 1996, [http://www.immersence.com/publications/char/1996-CD-Comp\\_Graphics.html](http://www.immersence.com/publications/char/1996-CD-Comp_Graphics.html).

20 - M.J. Jones, “Char Davies: VR through Osmosis,” in *Cyberstage*, Vol. 2, n. 1, Fall 1995, <http://www.immersence.com/publications/1995/1995-MJJones.html>.

21 - P. Lévy, *Cyberculture*, op. cit., pp. 21-22. The University of Minnesota Press English translation of *Cyberculture* inexplicably changes the name of Davies' immersive virtual environment from *Osmose* to *Osmosis*.

22 - C. Davies, “Osmose: Notes on Being in Immersive Virtual Space,” in *Digital Creativity*, Vol. 9, n. 2, 1998 (text dates originally from 1995), <http://www.immersence.com/publications/char/1998-CD-DigitalCreativity.html>.

The team was composed of John Harrison and Georges Mauro, and of Dorota Blazszczak and Rick Bidlack for the sonorous part.

23 - O. Grau, “Charlotte Davies: Osmose,” in *Virtual Art: From Illusion To Immersion* (Cambridge, MA: MIT Press, 2003), <http://www.immersence.com/publications/2003/2003-OGrau.html>.

24 - Significant and singular are the 'vegetal adventures' lived by Mark J. Jones and Pierre Lévy who experienced the installation when it was exhibited for the first time in 1995 in Montreal; Jones, in particular, reconstructs the atmosphere of that experience with a sort of tele-chronicle rich in details and in sensations felt: “I want to touch the tree but because I have no physical form, I cannot. I glide up through the leaves of the tree and surround myself with their damp, exquisite beauty. There, look at that leaf I'm going to go right through it! Inside a leaf. Amazing. Look at this, I'm sliding along the inside of a leaf. There, its veins. Up there, trickles of water molecules making their way down the stem. I hover above them for a moment, trying to see where they exit. Too far to see. I lower myself slightly, directly into the stream of molecules. They are flowing all around me, hugging my form like a thousand tiny angels bidding me welcome. I follow them down the stream, back out the stem of the leaf, back out to the crown of the tree, back out to paradise to a rapid sunset. Day turns into night.” M.J. Jones, op. cit.

Lévy describes in these terms his walk in the tree: “Suddenly you come into contact with the tree, penetrating the wood itself. As if you were a sensate molecule, you follow the channel used to carry its sap. Breathing in sharply, you rise inside the tree until you arrive at its topmost branches. Surrounded by capsules of chlorophyll, soft green in color, you enter a leaf, where you watch the complicated dance of photosynthesis.” Pierre Lévy, *Cyberculture*, op. cit., pp. 21-22.

25 - C. Davies, “Landscape, Earth, Body, Being, Space, and Time in the Immersive Virtual Environments *Osmose* and *Ephémère*,” in Judy Malloy, ed., *Women, Art and Technology* (Cambridge, MA: MIT Press, 2003), <http://www.immersence.com/publications/char/2003-Women-Art-Tech.html>.

26 - Citation taken from the site of *Osmose*, <http://www.immersence.com/osmose/index.php>.

27 - D. de Kerckhove, “Landscape in Motion - La Generazione delle Immagini 5,” text presented at the same-named exhibition curated by Roberto Pinto, Milan 1998-1999, <http://www.undo.net/cgi-bin/openframe.pl?x=/Pinto/gene5/kerk.htm>.

28 - M. Pesce, “Osmose en ik / Osmose and Me,” in *Wave*, n. 17, March-April 1996, <http://www.immersence.com/publications/1996/1996-MPesce.html>.

29 - This intention is, however, not to be read in an idyllic or spiritual-religious key: Davies is decisively opposed to the a priori interpretation of her work as an idealization of nature, belonging to the New Age current of technoculture, while at the same time being aware that readings of that sort by some people are possible; the artist believes that immersion in *Osmose* is a human experience centered around the body, an experience that is so intimate and subjective as to leave itself open to more personal interpretations. See E. Davis, “Osmose,” in *Wired*, Vol. 4, n. 8, August 1996, <http://www.wired.com/wired/archive/4.08/osmose.html>. The citation from Davies is taken from K. Deepwell, “Reverie, Osmose and Ephémère: Dr. Carol Gigliotti interviews Char Davies,” in *n.paradoxa, international feminist art journal*. Vol. 9, (Eco)Logical, 2002, <http://www.immersence.com/publications/2002/2002-CGigliotti.html>.

Alan Durkata - The Imperial Russian Air Service: Famous Pilots and Aircraft of World War I Jean MacIntosh Turfa, "The Etruscan World" Frisians and Their North Sea Neighbours : From the Fifth Century to the Viking Age The Sea Peoples. Warriors of the Ancient Mediterranean (1250-1150 BC) Mimi and Toutou Go Forth: The Bizarre Battle Of Lake Tanganyika. Charlotte Davies "Osmose". If in virtual environments during the first years of Virtual Art one often witnessed the use of gateways that caused abrupt crossovers, what one experiences in the image spaces of "Osmose" are osmotic crossovers from one sphere of images to the next, always aware of how an old sphere deteriorates and then amalgamates with a newer one. The inconsistency between technology and nature that Char Davies seems to develop as the theme in the work "Osmose" (osmosis), and in the succeeding work "Ephemere" is explained only in part by an interest in economy. Char Davies addresses this techno-cultural problem in her work Osmose[2]. A person entering the installation is presented with images on two projection screens: on one is a silhouette of the person "offlyteinpgn" the work (Fig. 1) and on the other, the space that he or she is "flying" through (Fig. 2). It is an elegant and evocative work, with the image and music presenting a floating, wistful feel. One flies through translucent underwater, likens the experience to one of diving rather than dreaming. The participant gains a sense of being removed from the everyday world and "immersed" in some environment that does. Throughout, comparisons are made between OSMOSE and conventional design approaches to virtual reality. The tendency of such approaches to reinforce the West's historic devaluation of nature and the body is also discussed. It is suggested that this medium can potentially be used to counteract such tendencies. In the case of OSMOSE, an experiential context is constructed in which culturally learned perceptual/conceptual boundaries are osmotically dissolved, causing conventional assumptions to be challenged.

@article{Davies1998OSMOSENO, title={OSMOSE: Notes on being in Immersive virtual space}, author={Char Davies}, journal={Digit. Creativity}, year={1998}, volume={9}, pages={65-74} }. Char Davies. Published 1998. Computer Science. Digit. Creativity. on the Technological Character of Lithic Assemblages. Emily Coco. 1. & Simon Holdaway. 2. & Radu Iovita. 1. Therefore, we should include it in explanations regarding the character of assemblages. Industries labeled "transitional" in the literature constitute one particularly salient example. These contain tool forms with characteristics intermediate between those of earlier and later periods (e.g., Kuhn 2003; Kuhn et al. 1999; Kuhn and Zwyns 2014). One interpretation of transitional in such situations involves the hypothesis of technological evolution where industries contain mixtures of characteristics from both a.