

## Who's Afraid of the In-Between?

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When words are 'added up' in our logocentric cultures, we tend to make quick associations, paying more attention to the 'sum' of meaning generated by a neologism's hybridized elements than to the act of hybridization itself and the subtle, catalysing machinery involved in this process of *becoming*. *sk-interfaces*, as a *trompe l'œil* concept both for the exhibition and the publication, is designed to emphasize the growing importance of this liminal state of 'inbetweenness'. While *skin* and *interface* can be readily identified as solid words in their own right, tempting us to make the immediate, literal association of 'skin as interface', it is the title's hyphen that demands our attention. The intrinsic quality of the hyphen to change its position allows it to take up the position of in-between, exploiting its potential to modify our perception of a given word in the manner of a *Vexierbild* (picture puzzle). As a mediating material signifier supposedly devoid of its own meaning, the hyphen is indeed more than merely a link; it dynamically induces an *ability to become* into the very 'body' of the concept *sk-interfaces*. But it is not the position of the hyphen alone that determines whether the modified word may be understood as a discursive tool or as pure slang, and by whom; it also depends on whether the word is read, thought or spoken aloud. The specific materialities of communication *matter* – they matter in art, and they matter even more in the current state of a still developing post-digital paradigm for which Roy Ascott has coined the intriguing term *moist media*, 'comprising bits, atoms, neurons, and genes in every kind of combination' and in

which 'the dry world of virtuality and the wet world of biology' merge to become a substrate of art.<sup>2</sup> Since we cannot expect such techno-holistic views of how matter will then be in-formed to unfold 'naturally', nor cultural notions or concrete physical realities to warmheartedly collapse into each other, it is first and foremost the mediating membranes that warrant our consideration – membranes conceived as active rather than passive, membranes that do not merely separate insides from outsides nor are simply crossed or transgressed, but instead are negotiated.

*sk-interfaces* attempts to make these membranes tangible in a twofold yet mutually informing approach through art and cultural theory which provides a locus both for phenomenological experience and embodied thought. Put succinctly, art came first and cultural theory followed, unless it was already taken up in the artistic position itself. In contrast to the trend in academic publications to use art primarily as a mere placeholder or litmus paper, illustrating otherwise self-sufficient arguments from pre-existing heuristic frameworks with the most 'meaningful' examples, the artworks and performances in *sk-interfaces*, reflecting a wide variety of forms both with respect to discourse and technique, should first be considered independently. A five-year empirical study of why and how artists have recently developed an interest in the material properties and functionalities inherent in the notion of 'skin as a physiologically mediating instance' revealed common patterns of motivations. What these works share

1 Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer (eds), *Materialities of Communication* (Stanford, CA: Stanford University Press, 1994). Gumbrecht illustrates the expectation of 'high abstraction' in the humanities, to refer to phenomena that one would tend to qualify as 'spiritual' rather than 'material' as a sort of 'everyday Cartesianism', through an anecdote reported from a university lecture: 'I was interrupted by a man in the small audience (apparently a colleague) who showed clear signs of impatience: "Could you please define what you mean by *meta-realities* of communication?"

answers to a recurrent nominal phrase in my talk that I had hoped would be understood as *materialities of communication*.' 'A Farewell to Interpretation', in Gumbrecht and Pfeiffer, *Materialities of Communication*, 389.

2 Roy Ascott, 'Technoetic Territories', in Ric Allsopp and Scott Delahunta (eds), *Performance Research: Digital Resources* 11.4 (2006), 39–40.

is their liminality within which major shape-shifting transformations can occur. In the ambiguity, openness and disorientating indeterminacy of these unstable transition zones, ontological crises and epistemological doubts relating to our ever-expanding identities are given material form: from trans-border, -gender or -species issues and mixed ethnicity to the fascination of growth, self-experimentation, infection and healing, to matters of the living and non-living, such as the status of foetuses, stem cell research and tissue culture.

#### PERFORMING THE LIMINAL

The performance of the liminal in the arts poses the proverbial chicken and egg question: Is art merely reflecting and anticipating the consequences of far-reaching biomedical developments? Or does it play a more active role, providing the aesthetic framework which paves the way for the very coming-into-being of these *liminal lives*? Susan Merrill Squier, in her book *Liminal Lives – Imagining the Human at the Frontiers of Biomedicine*,<sup>3</sup> argues that (science) fiction, poetry, literature, visual and performance art are cultural spaces located at this threshold where worries about ethically and socially charged scientific procedures are being worked through. Squier examines ‘the whole range of interventions including embryo culture, in vitro fertilization, growth hormone administration, inter-species fertilization as part of assisted reproduction, stem cell therapy, xenotransplantation, and fetal cell transplantation’,<sup>4</sup> arguing that ‘we must link our contemporary strategies for modifying things and people with our strategies of representation’.<sup>5</sup> Artists and other cultural practitioners located at this threshold may function as agenda-setters, and therefore not only share responsibility in our perception of these liminal lives but in their development and design as well.<sup>6</sup>

To illustrate how these liminal lives come into our world, Squier borrows and extends the notion of liminality from Scottish anthropologist Victor Witter Turner and his concept of the rite of passage, an emotionally uncomfortable ‘betwixt and between’ period of transition<sup>7</sup> during which one is in a ‘neither here nor there’ situation of enhanced self-reflexivity – for example during an initiation ceremony. But Squier views us as human beings in the era of biotechnological interventions in birth, growth, ageing and death as *liminal ourselves*, ‘as we move between the old notion that the form and trajectory of any human life have certain inherent biological limits, and the new notion that both the form and trajectory of our lives can be reshaped at will’.<sup>8</sup> In reference to anthropologist Paul Rabinow, Squier distinguishes *bios*, ‘the appropriate form given to a way of life of an individual or a group’, and *zoë*, ‘the simple fact of being alive and applied to all living beings per se’, but ‘zoë is increasingly confused with bios, with the result that we are finding it harder and harder to define what life is, much less to decide whether we should attribute a variation we encounter to forces of nature or culture’.<sup>9</sup> As a result,

Turner’s notion of cultural liminality superimposed safely on a solid biological life no longer applies, with destabilizing consequences that reach from our cultural analysis to our medical practices, shifting the very ground of being. The stories we tell about our lives – whether fiction or fact – are crucial maps to this shifting ground.<sup>10</sup>

The overlap of both cultural and biological liminality is central to artistic strategies dealing with biological systems or biotechnological techniques as means of expression and extending into areas such as cell and tissue cultures, neurophysiology, transgenesis or medical self-experimentation. In Julia Reodica’s work, the

3 Susan Merrill Squier, *Liminal Lives – Imagining the Human at the Frontiers of Biomedicine* (Durham, NC, and London: Duke University Press, 2004).

4 *Ibid.*, 17.

5 *Ibid.*, 10.

6 In the chapter ‘Transplant Medicine and Transformative Narrative’, Susan Squier discusses how the cultural perception of the human body and its constituent parts is being shaped through the visual arts and science fiction. *Ibid.*, 168–213.

7 Victor Witter Turner, ‘Frame, Flow and Reflection: Ritual and Drama as Public Liminality’, in Michel Benamou and Charles Caramello (eds), *Performance in Postmodern Culture* (Madison, WI: Coda Press, 1977), 33–55.

8 Squier, *Liminal Lives*, 9.

9 *Ibid.*, 7.

10 *Ibid.*, 9.

'inbetweenness' conveyed by the hyphen in *sk-interface* materializes as hymen: tissue cultures of smooth rodent muscle tissue, bovine epithelial cells and the artist's own vaginal cells, designed to symbolically re-virginize repeatedly. While in clinics worldwide, hymenoplasty, the reconstituting of the hymen, is carried out as pre-marital *fine tuning* to ensure female bleeding on the wedding night, Reodica negates the notion of assigned gender: *hymNext* cultures can be transplanted to men as well.<sup>11</sup> 'The technical research and manipulation of cells in a novel environment does not include gender at all, but purely the cell as a living, architectural being.'<sup>12</sup>

*Architectural beings* might also be an appropriate term for Zbigniew Oksiuta's constructions out of biological polymers, which use the processes of self-organization and internal tensions in semi-permeable polymer surfaces as sources of amorphous shape formations. Drawing on the principle of living systems that emerge out of protective liquid membranes, *Breeding Spaces* is a project designed to generate forms 'in which the borderline separating the interior from the outer environment is not a foreign body, made of neutral material (such as Petri dishes or glass containers), but an immanent element of the whole structure. It is simultaneously a boundary *and* a spatial scaffold. It plays an active role in the processes inside the system.'<sup>13</sup> While the building of large-scale fluid but stable forms is impossible in the earth's gravitational field, Oksiuta attempts to create such forms in underwater environments and, potentially, outer space, where suitable conditions for the growth of soft membranes can be found:

The organisms which live in a gravitational field are themselves in a hermaphroditic condition, divided between solid and fluid material; they consist primarily of water and even develop, as well, particularly in the

embryonic stage, *in water*. On earth, these fluid bodies are kept in form by their soft membrane, the skin, and stabilized with a skeleton.<sup>14</sup>

Interestingly, Gilles Deleuze and Félix Guattari delineate similar principles for performing the liminal, analogous to the scale of individual behaviour and the biological mechanisms of life. In *1837: Of the Refrains*<sup>15</sup> they describe the formation of dynamic *milieus* through the creation of functional rhythms to escape chaos and create provisional boundaries, *milieus* that are reopened once stability is achieved. Like the child who quells its fear in the dark through song and so creates a reassuring space, for 'home does not preexist: it was necessary to draw a circle around that uncertain and fragile center, to organize a limited space'. Thanks to this provisional, protective 'skin', 'the forces of chaos are kept outside as much as possible and the interior space protects the germinal forces of a task to fulfil or a deed to do', before the natural impulse to open recurs and 'one opens the circle a crack, opens it all the way, lets someone in, calls someone, or else goes out oneself, launches forth'. Yet here, too, the membrane is not passive but active: 'One opens the circle not on the side where the old forces of chaos press against it but in another region, one created by the circle itself'. This principle of self-organization through the linking of fluctuating and intermingling *milieus* in Deleuze and Guattari figures, ultimately, as a general model of the living as such:

Every milieu is vibratory, in other words, a block of space-time constituted by the periodic repetition of the component. Thus the living thing has an exterior milieu of materials, an interior milieu of composing elements and composed substances, an intermediary milieu of membranes and limits, and an annexed milieu of energy

<sup>11</sup> A *hymNext* prototype has been applied to a male volunteer, artist Adam Zaretsky, and the defloration act carried out in his nostril.

<sup>12</sup> Julia Reodica, 'Feel Me, Touch Me: The *hymNext* Project', in this volume, 73.

<sup>13</sup> Zbigniew Oksiuta, 'Biological Habitat: Developing Living Spaces', in this volume, 137.

<sup>14</sup> See below, 139.

<sup>15</sup> Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (London: The Athlone Press, 1988) (originally published as *Mille Plateaux*, Volume 2 of *Capitalisme et Schizophrénie* [Paris: Les Editions de Minuit, 1980]).

sources and actions-perceptions. Every milieu is coded, a code being defined by periodic repetition; but each code is in a perpetual state of transcoding or transduction. Transcoding or transduction is the manner in which one milieu serves as the basis for another, or conversely is established atop another milieu, dissipates in it or is constituted in it.

This could by all means constitute a theory of interfacing as well, but one in which the human would be a co-constitutive rather than an external, dominant element in an increasingly complex biocybernetic environment.

#### SKINNING THE INTERFACES

It is fascinating to examine more closely the initially contradictory levels of meaning of such a tension-filled word as *skinning*. Most commonly, 'skinning' refers to the act of removing the skin from a dead animal. By extension, skinning can be understood metaphorically as scaling something down, or removing much of the essence of something. Ironically, what is understood in the physical context of the body as a 'taking away' is now in the language of digital culture an 'adding on', where skinning refers to the design of surfaces, for example, in video games. It may describe the process of creating 2-D textures to be applied to 3-D meshes, or creating 'skins' as themes to change the appearance of a computer program. Software capable of having a 'skin' applied is referred to as being *skinnable*. We might ask how our culture has arrived at this astonishing degree of reflexivity – which seems to be reflected linguistically in the reversibility of levels of meaning – and if, in light of the transitivity of verbs, contradiction even exists here.

In her analyses of skin, and in accordance with Didier Anzieu's concept of the skin-ego,<sup>16</sup> Claudia Benthien emphasizes two extreme phantasms associated in an

anthropological sense with the skin: 1) 'the masochistic phantasm of the flayed body' and 2) 'the narcissistic phantasm of the doubled skin'. Both phantasms are related to the early childhood fantasy of sharing the skin of the primary caretaker.<sup>17</sup> Moreover, as the history of anatomy shows, Western thought is shaped by the idea that the penetration of the skin's surface is synonymous with the production of knowledge, for the body's interior holds the core of truth. The notion of the reflexivity of skinning becomes even more significant when we consider that in numerous anatomical representations the skinned 'object' participates as 'subject' in its own, apparently painless and nonchalant, skinning, as if the only concern was to increase the knowledge we abstract from the body.

It is precisely this reflexivity that we see in the interpretation of the Greek myth of Marsyas, the agonistic duel between Marsyas and Apollo whose climax is the punishment of Marsyas by flaying. This is a struggle between world order and chaos, for 'fundamental differences are at stake: the sphere of Dionysus and the sphere of Apollo. This is the divided intellectual world of the Greeks: on the one hand, dark, Silenic pessimism, on the other Apollonian science, the light of rationality.'<sup>18</sup> It is a battle over '*sophia*, over the *form* of knowledge'.<sup>19</sup> Stéphane Dumas sees the Marsyas myth to a certain degree as the mirror image of the subject/object paradigm:

My hypothesis is that Apollo here becomes the prototype of the *I*, an expression of the subject as viewed in Western civilization. This *I* is the subject of an absolutely transitive action: *I flay you!* [...] The *Hanging Marsyas* is the passive object of the transitive verb 'to flay' whose subject is Apollo. However, it seems to me that this transitivity involves a degree of reflexivity. This in fact is why it expresses the action of a true subject. In a

<sup>16</sup> Didier Anzieu, *The Skin Ego* (New Haven/London: Yale University Press, 1989) (*Le Moi-Peau* [Paris: Bordas, 1985]).

<sup>17</sup> Claudia Benthien, *Skin: On the Cultural Border between Self and World* (New York: Columbia University Press, 2002), 9.

<sup>19</sup> *Ibid.*, emphasis mine.

<sup>18</sup> Ursula Renner and Manfred Schneider, 'Die Aktualität des Marsyas', in Renner and Schneider (eds), *Häutung. Lesarten des Marsyas-Mythos* (Munich: Wilhelm Fink Verlag, 2006), 8.



way, through the duel and then the flaying, Apollo and Marsyas form an indissociable pair.<sup>20</sup>

Here arises the subject/object paradigm, the central preoccupation of epistemology, yet it arises as an instance of actual bodily flaying in which the skin becomes a reflexive interface – indeed, in numerous interpretations of the myth, Apollo's skin almost seems to fuse with that of Marsyas. Nevertheless, it is Apollo who wins the battle and gains the upper hand –

one of the reasons why Apollo wins this duel: he is able to sing to the music of the lyre, something quite beyond his flute-playing rival. To be sure, Apollo's voice is not that of the modern *ego*. But it is a signifying voice, that of the *logos*, in contrast with his rival's purely instrumental music<sup>21</sup>

– and thus seems to stand for the enduring logo- and phonocentrism of Western culture.

In this context, we can revise our understanding of 'interface' to go beyond the common limited notion of a data-transmitting connection between analogue and digital entities which relate to one another through shared, language-like protocols. Apollo and Marsyas both have *faces* and between (*inter*) them is the corporality of the skin. We can assume that none of this was lost on media artist Maurice Benayoun in designing his emblematic, interactive CAVE-Installation *World Skin*, which still today, ten years after its inception, poses the question about the site and role of bodily presence in a digital culture. Benayoun allows viewers to experience this *skinning* in its etymological ambiguity, inviting them to a perfidious photo safari in a land at war. On the one hand, the real and subsequently digitized images of war, as two-dimensional surfaces, are

pulled like clothing onto the matrix of coordinates of an abstract landscape, yet the stereoscopic effect gives them a three-dimensional appearance. The immersive effect is intensified as war tourists, armed with digital cameras, are sucked into the display through the assigning of a task. This is a classic strategy of interactive media art in which 'artists have frequently responded to the so-called dematerializing tendencies of information culture by bringing bodies into direct contact with computational hardware in their work'.<sup>22</sup>

Yet the virtual encounter with soldiers and victims serves less to create empathy with the numerous faces than to generate a sort of numbing automatism through the medial extension of the viewers' own senses. In *World Skin* the voyeurism, self-generated by the whole technical apparatus, is transformed into action – by *taking* pictures the viewer leaves white spots on the war landscape. Through this skinning of the virtual world, Benayoun skins the interface itself, making it the subject of the installation: 'Photography deletes memory in the very process of creating it'.<sup>23</sup> And this applies all the more, since the digitization of documentary sources in *World Skin* already in the process of skinning annihilates the indexical quality of the photographic medium. Moreover, the simulated depth of the immersive sensory experience is ultimately reduced to flatness when safari tourists take laser prints of their photoshoot home. The ludic moment of interface-interaction is supplemented *ex post facto* through contemplation and reflection.

#### WHICH/WHOSE FACES?

The interaction of the installation *World Skin*, then, is designed above all to provoke communication with one's self, to lead us to examine our own mediated perception. When discussing the materiality of mediating instances, what or whom to interface with is significant. More than the purely technical modality of such interconnecting

<sup>20</sup> Stéphane Dumas, 'The Return of Marsyas: Creative Skin', in this volume, 19–20.

<sup>21</sup> See below 19.

<sup>22</sup> Anna Munster, *Materializing New Media. Embodiment in Information Aesthetics* (Hanover, NH: Dartmouth College Press/University Press of New England, 2006), 120.

<sup>23</sup> Maurice Benayoun, 'World Skin: A photo safari in a land of war', in this volume, 111.

systems, this dynamic liminality becomes interesting as a transformative instance. Nevertheless, the great temptation remains in media art to let digital-analogue interfaces do what they would otherwise do, albeit with a playful twist, as in the case of what might be referred to as 'data translation art'. In 1996 artist Jim Campbell mocked such interface art in his *Formula for Computer Art*,<sup>24</sup> which can be seen as a critique of art that maps an arbitrary input (e.g. heartbeat, net activity, stock markets, earthquakes, etc.) onto an arbitrary output (e.g. motorized objects, wind or rain generators, moving images, dynamic graphs, etc.), reducing the transformative potential of interfacing to the act of translation.

On the other hand, there are many interfaces in which *the other* as machine is dominant, sometimes even facialized. The typical example that comes to mind is the dotted, rudimentary smile or the dissatisfaction expressed through the arch of the semi-circular 'mouth' that welcomes users of certain operating systems. Anna Munster argues that the computer takes in facialized attributes because it comes to figure as a 'subject':

these interfacializations aim to overcome the differentiation always at stake in body-computer interaction, by eradicating the distinction between human and machine. This is achieved by ignoring the material conditions of human-computer engagements and by 'elevating' this interaction to a communicative, cognitive level. Interfacializations also bequeath certain powers and even proto-subjectivities to computers, such as the helpful servant or the suprahuman conquering race of future robots.<sup>25</sup>

Hence, we must pose the more fundamental question, whether interfaces, to speak in purely ontological terms,

need necessarily be *computer* interfaces, and whether there is something genuinely tautological at the root of this monolithic association: Humans, those 'tool-making animals', who define themselves through cognitive superiority to other creatures and in the broadest sense through *techne* and *poiesis*, communicate with machines they themselves have created, using language protocols they have also developed, through a kind of interactive mimesis.

In *Understanding Media*,<sup>26</sup> Marshall McLuhan describes media in general as an extension of human sensory capacity. This is characterized by a synaesthetic interplay generated by the multiplication of these extensions, which now, however, in the electronic age, not only expand the entire capacity for perception but allow the senses to numb one another. To clarify the process of *autoamputation* which parallels that of medial extension, McLuhan turns to the myth of Narcissus, putting deliberately into play the similarity of the Greek *narcosis* (numbness) and *Narcissus*:

The youth Narcissus mistook his own reflection in the water for another person. This extension of himself by mirror numbed his perceptions until he became the servomechanism of his own extended or repeated image. The nymph Echo tried to win his love with fragments of his own speech, but in vain. He was numb. He had adapted to his extension of himself and had become a closed system. Now the point of this myth is the fact that men at once become fascinated by any extension of themselves in any material other than themselves.<sup>27</sup>

In the context of the question at hand, whether and how interfaces should be understood not only through cognitive-language vectors but beyond that through direct physiological ones, McLuhan opens up greater

<sup>24</sup> Jim Campbell, 'Delusions of Dialog: Control and Choice in Interactive Art', lecture at the Museum of Modern Art, New York, *Technology in the 1990s: The Human/Machine Interface* symposia series, May 1996, <http://www.adaweb.com/context/events/moma/technology.html> <http://www.jimcampbell.tv/> (accessed 12 December 2007).

<sup>25</sup> Munster, *Materializing New Media*, 123.

<sup>26</sup> Marshall McLuhan, *Understanding Media: The Extensions of Man* (1964) (Cambridge, MA: MIT Press, 1994).

<sup>27</sup> *Ibid.*, 41.

possibilities, in particular because his media theory is not limited to telecommunication or information theory but includes such various 'media' as clothing, housing, weapons, aeroplanes and so on. Coupled with his theory of inclusion, that media *per se* always already contain other media (the infamous 'the medium is the message'), McLuhan's theory can be extended to biomedias<sup>28</sup> as well, which in the age of xenotransplantation and transgenics may no longer be considered from a strictly anthropocentric point of view.

With what or whom do we need to interface today and how, beyond the established protocols? Louise Poissant brings the issue to a head when she writes that, in new media art, 'the raw material, one must say, is algorithmic and abstract and at the same time composed of communicational flux made of sensations, emotions, ideas, and exchanges'.<sup>29</sup> She sees in interfaces the potential for the extension of telescoping and microscopy:

both of them open us up to worlds, allowing us to redefine ourselves. The former relativizing our position, the latter establishing continuity between different kingdoms: animal, vegetable, and mineral. A large number of interfaces developed by artists fulfil similar functions.<sup>30</sup>

Poissant suggests replacing the term *interactivity*, often inappropriately yet automatically associated with interfaces, with the term *alteraction*. 'The notion is even more interesting since it puts the emphasis not only on the action but also on the encounter with the other.'<sup>31</sup> But just what would such a perspective on interfaces look like when contact with *the other* is our goal, with those already telescopically and microscopically grasped instances of plant, animal or mineral otherness?

#### MOVING AWAY FROM MOTION

A central characteristic of contemporary media art has long been its affinity for interactive displays and the inherently processual nature of the exchange between artist and participant, in order to clearly distinguish themselves from 'dead object and material art', where processes merely culminate in the end product of the completed work. Media art's emphasis on the processual implies progression on the scale of time, and movement, whatever the form, set in motion by cognitively initiated, binary logical processes, hence conceived as *active*. By contrast, material properties are considered *passive* and would fall outside the realm of interfaces. But are there not, then, points of interconnection between two entities when parameters are 'programmed' not electronically but chemically, mechanically or biologically? Emulsions and dispersions can also be understood as interfaces. When water and oil are mixed, they tend to separate and at equilibrium become two distinct strata with an oil-water interface in between – processes such as those employed by Zbigniew Oksiuta in his *Isopycnic Systems*<sup>32</sup> in order to create empirico-material forms of such complexity that no computer simulation could calculate the parameters in their entirety. Even the surface of Narcissus's lake may be regarded as an interface of water and air.

Performance artists such as Yann Marussich encroach upon these spaces in-between. In *Bleu Remix*, Marussich creates a controlled biochemical situation that generates an apparently motionless choreography of methylene blue, using thermal regulation and precisely calculated timing, which then seeps out of body cavities and pores, thus making 'the motionless body a monochrome vibration that hints at the problem of the relationship between outward immobility and inner mobility. What is going on inside the body ahead of the visible movement. The pre-

<sup>28</sup> Eugene Thacker, *Biomedias* (Minneapolis, MN: University of Minnesota Press, 2004).

<sup>29</sup> Louise Poissant, 'The Passage from Material to Interface', in Oliver Grau (ed.), *MediaArtHistories* (Cambridge, MA/London: MIT Press, 2007), 244.

<sup>30</sup> *Ibid.*, 240–41.

<sup>31</sup> *Ibid.*, 235.

<sup>32</sup> See below, 134.

movement is written down in the body.’<sup>33</sup> Marussich, who actually comes from the field of dance, intentionally plays here with the topos of an activity perceived externally as passive, speaking of ‘motionless sculpture’ and the ‘bloodless flaying of the body’. What interests him is less the expression of psychological states or the externalization of cognitive processes than the notion of presence: ‘Presence and the bubbling mobility of the inner body which are complementary to the image of the motionless body [...] Art is no longer a *representation* but a continuous inner state *presented* before third parties.’

Here we encounter what Hans Ulrich Gumbrecht has termed an ‘oscillation between *presence effects* and *meaning effects*’.<sup>34</sup> Gumbrecht maintains that material elements, those that ‘touch’ the bodies of communicants, ‘have been bracketed (if not – progressively – forgotten) by Western theory building [...] ever since the Cartesian *cogito* made the ontology of human existence depend exclusively on the movements of the human mind’, and calls for a rediscovery of presence effects and a critique of our abstract hermeneutic culture of interpretation. Gumbrecht brings into play two distinctive cultural paradigms in whose oscillation it is possible to *think* materiality and corporality: *meaning cultures*, which include primarily the culture of Protestantism since the (Early) Modern age, and *presence cultures*, which refer more to medieval, early Catholic and ritualistic culture. Accordingly, the dominant human self-reference in a meaning culture is the mind, while that of a presence culture is the body. In a meaning culture, time is the primordial dimension, as it enables consciousness; moreover, it takes time to carry out transformative actions through which meaning cultures define their relationship to the world. Humans conceive of themselves as detached and eccentric in relation to the world to be transformed; and knowledge is legitimate when human subjects

produce this knowledge by scratching the material surface of the world. In a presence culture, humans consider their bodies in their surrounding space to be rhythmically part of a cosmology that makes inherent, magical sense, and in which knowledge is revealed. Further, in a meaning culture a sign is understood as a purely spiritual signified, which can only be expressed by a purely material signifier. In presence cultures, however, the sign exists as substance. Meaning cultures attempt to effect future transformations by means of competition between temporal successions of abstract ideas. Presence cultures, however, attempt to enact extant cosmology in spatial terms by means of ritual.<sup>35</sup> From a historical perspective, as Gumbrecht writes, this repeated epistemological twist has ‘brought up the question of a possible compatibility between world-appropriation by concepts (which [he calls] “experience”) and a world-observation through the senses (which [he calls] “perception”).’<sup>36</sup>

#### INDUCING GROWTH

Eduardo Kac’s *Telepresence Garment*<sup>37</sup> pursues an analogous interface strategy using both telecommunication to conceptually bridge distance as well as direct, bodily experience. This work, conceived initially in 1995, can be seen as a manifesto for concrete phenomenological experience in an increasingly abstract world model. Kac’s creation, here, of a remote and externally determined ‘zomborg’ deals with the concrete experience of estrangement through abstract and teleported realities, such as

the interconnectedness of the world economies and ecologies. Glaring examples are the financial crashes that resonated across Asia, Russia, and Latin America in the 1990s and the dramatic consequences of the geographic

<sup>33</sup> Yann Marussich, ‘Immobile, Bleu... Remix!’, in this volume, 128.

<sup>34</sup> Hans Ulrich Gumbrecht, *Production of Presence: What Meaning Cannot Convey* (Stanford, CA: Stanford University Press, 2004), 2.

<sup>35</sup> *Ibid.*, 78–90.

<sup>36</sup> *Ibid.*, 39.

<sup>37</sup> Eduardo Kac, ‘The Telepresence Garment’, in this volume, 106–10.



displacement of viruses and insects around the world as a result of increased travel and commercial shipments.<sup>38</sup>

McLuhan's media are not far off here, and the restrictive form of Kac's communications-technological second skin is a stark reminder of the image of a general 'turning into skin' through sensory extensions in the electronic age, which at the same time hold the potential to 'cut themselves off':

Ultimately, the question is not how these technologies mediate our exploration of the world, local or remote, but how they actually *shape* the very world we inhabit [...] This *prêt-à-porter* foregrounds the other meanings of the verb 'to wear': to damage, diminish, erode, or consume by long or hard use; to fatigue, weary, or exhaust.<sup>39</sup>

However, not all of Kac's works using telepresence have this dystopic touch. In general, Kac explains, they should have 'the power to contribute to a relativistic view of contemporary experience and at the same time create a new domain of action, perception, and interaction'.<sup>40</sup> But above all, they should 'create dialogical and multilogical telepresential experiences. They suggest the need to nurture a network ecology with humans and other mammals, with plants, insects, artificial beings, and avian creatures'.<sup>41</sup> Here, Kac makes explicit reference to trans-species communication, which makes up the central focus of many of his bio-telematic works and poses questions of paralinguistic vectors and empathy.<sup>42</sup> But it is a different interactive installation that takes the step from the telecommunicative bridging of distances and virtual movement to real biological growth. In *Teleporting an Unknown State*, Internet video-conferencing was used to teleport light particles (and not messages) from several countries with the sole purpose of enabling biological (and not artificial) life and the growth

of a plant from a single seed installed in a very dark room. During the show, photosynthesis depended on remote collective action through the Internet as a life-supporting system. Change takes place here less through movement than through growth.

To an extent, Stelarc's *Extra Ear: Ear on Arm* project represents the antithesis to this communications-technologically facilitated plant growth. Here, the potential for wireless telecommunication is to be generated bit by bit through the organic matrix of a superfluous outer ear, implanted initially as scaffolding and then gradually growing inward through the later injection of stem cells. This telecommunicative potential is parasitically nested: an inter-*face* as inter-*ference* that caricatures medicine's standard bodily norm. Thanks to the built-in microphones and wireless transmission technology, the extra (but redundant) 'sensory organ' is meant to become functional. The raising of the arm to mouth or ear, a performative gesture as if ringing someone up, reminds us of those historical engravings illustrating early rhinoplastic transplantation techniques, such as those depicted in Gaspare Tagliacozzi's sixteenth-century flap for nasal reconstruction – whereby the skin fragments transplanted to the nose remain fused initially to the arm. Insofar as *Extra Ear: Ear on Arm* symbolically becomes an interface capable of receiving and emitting, as otherwise only the skin can do, Stelarc redoubles the dialectical reflexivity inherent to the skin as metaphor. It fits the concept of Stelarc's work, however, that certain complications and infections constitute part of the process. Indeed, Stelarc would not be Stelarc if there were not a certain sense of satisfaction in seeing that wetware and hardware may prove not to be fully compatible after all. Stelarc is not one to hide such imperfections. On the contrary, they play a central role in his artistic strategy.

<sup>38</sup> See below, 107.

<sup>39</sup> See below, 106.

<sup>40</sup> See below, 110.

<sup>41</sup> See below, 110.

<sup>42</sup> *Essay Concerning Human Understanding* (1994), in reference to John Locke, is an inter-species sonic bio-telematic work which promotes dialogue between a bird and plant; *Darker Than Night* (1999) explores the human-robot-animal interface: participants, a telerobotic bat and over 300 Egyptian fruit bats share a cave and become aware of their mutual presence through sonar emissions and frequency conversions.

## REVERSE OTHERING

Since the vector of change is shifting from the use of networks to bridge distances to microscopic modelling at the cell level, and from presence as a temporal dimension to presence as a spatial dimension of proximity, it is no surprise that artists have turned to the use of skin cells. For one thing, in comparison to other cells they reproduce and renew themselves faster; and for another, they are suited for use *per se* as biological metaphors for 'trans', as in trans-racial, trans-species, trans-gender. The duo Art Orienté objet, in *Artists' Skin Cultures*, cultivated the epidermal cells of both artists together, then grafted this layer of epidermis onto pig derma, before finally tattooing it with motifs of endangered species. Their trans-species totems are ultimately and ideally supposed to be grafted onto compliant art collectors themselves, who can then make the art bodies part of their own, and not necessarily merely in a symbolic sense. The work materializes 'the projection of a hybrid world where xeno-transplants would be common currency, and the distinctions between different living species would be blurred until they finally disappeared altogether'.<sup>43</sup>

In a continuation of her *Carnal Art*, Orlan creates a patchwork-like coat from hybrid skin cultures that mix her own cells, obtained through biopsy, with those of various ethnicities, as well as animal cells. This *Harlequin Coat* takes as its point of departure Michel Serres' text *The Troubadour of Knowledge*,<sup>44</sup> a declaration of self-determination and ethnic hybridity. The installation, as a satellite body, completes those modifications achieved by Orlan on the level of virtuality in her *Self-hybridations Africaines* and repositions them, in turn, in the sphere of real physiological design, pointing back to her early plastic surgeries. In Orlan's bioreactor skin cells cohabit which, *in vitro*, do not even 'consider' developing skin

colour by means of melanozytes. Much more, Orlan's live installation caricatures the logic of racist theories that sought to explain skin colour in physiological and 'scientifically water-tight' terms as 'filth' or 'pollutants' which supposedly settled in the bodies of 'blacks'.

The Australian Tissue Culture & Art Project (Oron Catts and Ionat Zurr) has specialized for a decade in cell and tissue culture and exhibits miniature sculptures that the collective itself describes as 'semi-living'. These are characterized by the fact that they are put on display in bioreactors and incubators as artistic growth processes. On the other hand, these fragmentary satellite bodies occupy an ontological grey zone. The collective's doll-size cell sculptures in *Victimless Leather* grow from human, mouse and pig cells cultivated together into the utopic vision of leather produced without victimizing animals,<sup>45</sup> whereby the characteristic of leather as a dead surface here, in the age of xeno-transplantation becomes a *trans-species interface*. What in psychoanalysis is referred to as the protective and defining surface which constitutes the human individual, much as Didier Anzieu has described it in the paradigm of skin-ego, is here inverted into its opposite: progressive permeability.

In these examples of *biofacts* which are created for the sake of art, we are dealing with 'models of something that does not yet have a body but could have one'.<sup>46</sup> It is the notion of growth that makes up the central thematic of Nicole C. Karafyllis's concept of biofacts – growth, which as a process suggests a self-dynamic, though 'directed growth ensures from the beginning that technical control' requires precisely this materiality to expose the 'trick of living material [growing] as natural material, although it is considered technology and is cultivated for specific purpose'. But the vegetal and the notion of growth represent the quintessence of nature, which, on the one hand, stands

<sup>43</sup> Marion Laval-Jeantet, 'The Fusional Haptics of Art Orienté objet', in this volume, 91.

<sup>44</sup> See reprint of the introductory text to *The Troubadour of Knowledge* in this book, 83–89.

<sup>45</sup> Indeed, because of the use of calf serum in tissue culture, there is indeed a victim, as Adele Senior points out in her essay 'In the Face of the Victim: Confronting the Other in the Tissue Culture and Art Project', in this volume, 76.

<sup>46</sup> Nicole C. Karafyllis, 'Endogenous Design of Biofacts: Tissues and Networks in Bio Art and Life Science', in this volume, 50.

in opposition to the technological and instrumental; yet it is precisely this sense of the 'vegetal, which has always accompanied machine discourse'.<sup>47</sup> Here, the example of tissue engineering is interesting insofar as it does not represent a revolutionary new technology but rather an older technology that, in McLuhan's sense, is capable of generating and pointing to new media and of referencing their repercussions. After all, it can be argued in the face of the convergence today of biomedicine as information transmitters, nanotechnology, synthetic biology, DNA chips and DNA sequencing that we are dealing with a certain virtualization of biology; yet 'the matching with wetware, that is, with the biological system for monitoring the function, remains necessary'.<sup>48</sup>

Naturally, the form of the cellular sculpture in *Victimless Leather* is recognizable as a 'leather jacket'; the image that people have even of body fragments conceptually holds the body together, to a degree as an *imprint* – however, not as negative but as positive. But the peculiar thing about biomedicine, in this case, is that in the contemplation of cellular mixes signifier and signified – image body and body image overlap. The medium as 'body of the image' is itself materially identical to the body of the viewer; it is not merely a reference to it, nor does it 'stand for' something, so that this relationship is less metaphoric than metonymic. Herein lies a common characteristic of the biomedicine used in art: they refer synecdochally to a whole and constitute a material part of this whole 'represented' by the fragment, so that we may speak both of *epistemological metaphors* and of *ontological metonyms*. The hybrid as a result may be seen more easily than the becoming of a biofact may be grasped.

#### WILL IT G(R)O(W) TO PLAN?

'Grids, Guys and Gals: Are you Oppressed by The Cartesian Coordinate System?': this was the title of a panel at the

22nd annual American Computer Machinery Conference on Computer Graphics and Interactive Technologies (SIGGRAPH) in 1995. At this conference, Anna Munster relates the story of a crucial experience that led her to write the book *Materializing New Media. Embodiment in Information Aesthetics*. For not everyone at the conference agreed with the views expressed on this panel lamenting the dominance of binary logic and the lack of corporality in digital culture:

A group of staunch neo-Cartesians filled the front rows of the audience and – bringing the seventeenth century into an odd alliance with late-twentieth-century computer geekdom – sported logos emblazoned across their mass-printed t-shirts declaring 'I ♥ Descartes' [...] These lovers and champions of information culture and its mechanistic antecedents heckled the panel. For them, the session represented an assault on the epistemological foundations of present-day computing technologies.<sup>49</sup>

In the 1990s, computer simulations of biological processes accordingly proliferated. When Ars Electronica in Linz dedicated the 1993 festival to *Genetic Art – Artificial Life*, the items first and foremost on the agenda were 'autopoietic systems, virtual creatures, AL software, genetic images, synthetic life, evolution and the ecology of digital organisms, interactive evolution and the algorithmic beauty of nature'. Computer culture had promoted 'the shift of paradigms from defining life as substance, material hardware or mechanisms to conceiving life as code, language, immaterial software, dynamical system'.<sup>50</sup> Since then, new media art has re-materialized itself. The former fascination with the 'code of life' is receding and making way for practices involving *wetwork*. There has also been a shift from a dominant focus on genetics to

<sup>47</sup> See below, 48.

<sup>48</sup> See below, 53.

<sup>49</sup> Munster, *Materializing New Media*, 2.

<sup>50</sup> Peter Weibel, 'Life – The Unfinished Project', in *Genetic Art – Artificial Life* (Vienna: Ars Electronica, PVS, 1993), 9–10.

culturing cells when it comes to artistic practice.<sup>51</sup> Here art runs parallel to theoreticians of science such as Evelyn Fox Keller. In 'Beyond the Gene, but Beneath the Skin',<sup>52</sup> Fox Keller complains of the still strongly gene-centred focus of much of molecular biological research, which is only slowly subsiding. She argues that not the gene but the entire cell must be put into focus as the scale of evolutionary biology. While the gene may be the *locus* of heredity, it cannot be its *source*. Genes remain stable only as long as the machinery in the cells responsible for that stability persists. Hence, according to Fox Keller, we must always examine the entire interaction within the cell and not the gene; for it is the cell that regulates so much of the traffic between inside and out, whereby the cell membrane is itself an active agent. Yet the focus on genetics reopens 'a far older controversy namely that concerning the relations between *form* and *matter*'.<sup>53</sup> Here, form is generally construed as *active* and matter as *passive*. This old debate now appears conceptually in art in the light of genes as 'active agents' and of the cellular and extra-cellular environment as 'passive material', as a substrate formed by an originally inscribed genetic code. Still, as Fox Keller reminds us, talk of a 'genetic program' is misleading and teleological, as if there were somehow a purpose or perhaps even a theological signpost behind it all.

For *sk-interfaces*, Jun Takita is cultivating a brain covered with transgenic bioluminescent moss. *Light, only light* is a sculpture in the shape of the artist's own brain, made using a magnetic resonance scanner. The transgenic moss is capable of emitting light in the same way that fireflies, glow-worms and certain deep water fish do. Takita materializes the transgenic as an achievement of the human brain to transfer to plants the ability to emit light, something they themselves require for photosynthesis. At the same time, he emphasizes human dependence on the oxygen produced by plants in Earth's ecosystem.

<sup>51</sup> Jens Hauser, 'Bio Art - Taxonomy of an Etymological Monster', in Gerfried Stocker and Christine Schöpf (eds), *Hybrid - Living in Paradox* (Ostfildern-Ruit: Ars Electronica/Hantje-Cantz, 2005), 182-93.

<sup>52</sup> Evelyn Fox Keller, 'Beyond the Gene, but Beneath the Skin', in Eva M. Neumann-Held and Christoph Rehmann-Sutter (eds), *Genes in Development. Re-reading the Molecular Paradigm* (Durham, NC/London: Duke University Press, 2006), 290-312.

<sup>53</sup> *Ibid.*, 292.

Certainly, Takita's work here does not reference Descartes. Perhaps he would rather have read Descartes' materialist and atheist adversary Julien Offray de La Mettrie, who describes man as 'that arrogant animal, made of clay like the others' not only in *L'Homme-Machine* but in a lesser known manuscript, *L'Homme-Plante*:

There is no animal, however feeble and mean in appearance, the sight of which does not diminish a philosopher's self-esteem. If chance has placed us at the top of the scale, do not forget that a trifle more or less in the brain, in which is found the soul of all men (except the Leibnizians), can immediately plunge us to the bottom, and let us not despise beings whose origin is the same as ours. They are, in truth, only the second rung, but their position is more solid and stable.<sup>54</sup>

The 'artistic preoccupation with programmed and technologically induced growth has many ramifications: only at the opening of the exhibition will we be able concretely to test the oscillation between effects of meaning and presence.

'Bio Artists' and bioscientists share a core experience: waiting for growth. It takes a relatively long time for cells and tissues to grow sufficiently that they can be used as media and means. The phenomenon of growth, in its slowness, mediates between subject and object because it *makes present* the time both share with one another synchronously.<sup>55</sup>

And it is not yet clear whether visitors will encounter *enlightenment*, and how much, nor whether or not it will be at all visible to them. No plug-and-play here. We'll wait and see if everything will go, grow and glow to plan.

<sup>54</sup> *La Mettrie: Machine Man and Other Writings*, ed. Ann Thomson (Cambridge: Cambridge University Press, 1996), 86.

<sup>55</sup> See below, p. 56.





*Hanging Marsyas*,  
Roman copy from  
a Hellenistic model  
dating from the third  
century BC, marble,  
H: 2.05m. Musée du  
Louvre, Paris.  
Photo courtesy  
Musée du Louvre.