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Playing with a Living Presence: Bio Art

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In the late eighties Vilém Flusser wrote a series of essays on discovery and science (*Artforum*, Sept. 1987–Oct. 1988) with which he actually introduced the biotech discourse into the artworld. He discusses artificial life, genetic information, creation of new forms, evolution and similar. The last essay in this series which was titled "On Science" and afterwards won a title "Blue Dogs" became a kind of a manifest for Bio Art Flusser wrote:

> "Why is it that dogs aren't yet blue with red spots, and that horses don't yet radiate phosphorescent colors over the nocturnal meadows of the land? Why hasn't the breeding of animals, still principally an economic concern, moved into the field of aesthetics? It's as if nothing in the relationship between humanity and the biological environment had changed since the life-style revolutions of the Neolithic age. Yet at the same time that the farms of North America and Western Europe are today producing more food than we can consume, we also, not coincidentally, have learned techniques that ultimately make conceivable the creation of plant and animal species according to our own program. Not only do we have mountains of butter and ham, rivers of milk and wine, but we can now make artificial living beings, living artworks. If we chose, these developments could be brought together, and farming could be transferred from peasants, a class almost defunct anyway, to artists, who breed like rabbits, and don't get enough to eat."[1]

The nineties were times of computer culture. The mechanisms of life were therefore thought as options of programmability and "artificial life ought not be understood as a simulation but rather as a preliminary stage of hardware versions."[2] Later on options of actual manipulation of life were arising. Transformational processes became possible with manipulation of living material. The techniques and discourse of art have therefore also changed. In art "wetworks" appear, which do not only manipulate the software, but are using true living material in the present time.

The nature of artistic practices has changed radically from the sixties on – from the moment of the so-called end of art (Danto), which coincides with the occurrence of popart and postmodernism as cultural dominant (Jameson[3]), as also with the cultural, political and intellectual agitation in the late sixties. The paradigms of modernity have been falling deeper and deeper into crisis during the twentieth century. Besides, new French thought (poststructuralism, semiotics, deconstruction, psychoanalysis etc.) has introduced serious arguments against the paradigms of modernity; the concepts of unity, totality, truth and progress have been proven as problematic. It was also proven that

absolute knowledge is unsuccessful, rational consciousness has deficiency and its progress is questionable. The new cognitions also led to different understanding of historiography. Towards the end of twentieth century reflection on the paradigms of modernity spreads and discourse on the end flourished, which also brought consideration about the end of modernity or metaphysics (Vattimo[4]) of which we are perhaps still in a longer process of convalescence.

In the sphere of culture the asserted hierarchy between high and low is rejected, the light has been thrown on a semiotic nature of cultural products, the intertextual nature of (artistic) texts is comprehended and thus the necessary contextual (social and ideological) dependence is ascertained. All kinds of arts are understood as a part of a wider field of social-representational practices.

The revolutionary flow of the sixties launched a wave of new media arts: performance, happening, land art, body art, video, installation art etc. Later even more "new media" arts followed: computer art, internet art, cyber art, sonic art, also bio art and others. These are still called by the media they use although there a strong tendency to mix or invent new media could be noticed. We could rather speak of multimedia. In comparison with modern art contemporary art is becoming less and less media or material-investigating and self-analytical. In accordance with the ideas of post-structuralism and deconstruction in art processuality, interactivity and the role of the reader (of the contents in general) have been becoming increasingly important. Last but not least we live in "a society of generalized communication."[5] A "work" of art is therefore no longer a wholesome entity with a closed structure; instead it is obtaining an open and dynamic net structure and is thus becoming more a space for game, production, intertextuality and reading processes. In such an artistic 'intertext', which is becoming above all a social event, the public has started to participate as if it were a ritual. A material object could also be absent or we could talk about immateriality, while this art is not that much related to artefacticity as rather to processuality and investigational practices etc. But all these features are subordinated to the basic promise of this art – to be discoursive.

Artists often cooperate with professionals from other disciplines, for instance with natural scientists. Rather than interdisciplinary this art is getting transdisciplinary – its basic rule is hybridisation. We could speak about "mode-2" art as Ernest Ženko suggests,[6] or we could claim these are specific socially-reflective practices of late capitalism, when economy and capitalist order has become universally-functioning basis and the primary obligation to any contemporary structure or organization. On the other hand we could say that contemporary is a digital world (Vilém Flusser believed we are denoted by digital appearance)[7] or we are significantly marked with computer logic of functioning and computer is the dominant database technology of today. Jos de Mul emphasizes the importance of database manipulation in contemporary art and the extreme level of interactivity, which is at work nowadays. In such a manner the quality of artworks could now be measured with the level to which the artwork is open for manipulation.[8]

Besides, computers introduced the thinking about the logical structure of an organism and changed our perception of life. On the basis of self-producing cells (in the eighties a researcher Christopher Lengton developed cellular automation loops", which were able to reproduce in a way similar to living structures, like DNA-molecules) scientists were able

to generate "living systems" on their computers, that grow and reproduce, that can develop and adapt to their environment (digital ants, birds and other virtual creatures and organisms were created). In 1993 Peter Weibel reflected on the question: what is life (the 1993 Ars Electronica festival was devoted to the question of artificial life and to genetic art). Scientists have developed types of artificial life the outward appearance of which resembles that of human beings and animals: robots and highly-developed automatons, explained Weibel.

> Life, death, immortality, reproduction, heredity, development, evolution, growth, adaption – all these concepts have been given a new dimension by the computer culture. Computer culture enforced the shift of paradigm from defining life as substance, material hardware or mechanism to conceiving life as code, language, immaterial software, dynamical system. Handling computers has taught us that the 'logical structure' of an organism can be separated from its material basis and that life is a property of the former, not the latter.[9]

Contemporary art practices are open-structured and socially- or politically-involved. The value is in its ability to manipulate the information, for which is has to establish a platform as a kind of a matrix, within which it manages or manipulates information. In such a manner discoursivity is also related to questioning, positioning and manipulation of social or political power. On the other hand the principle of contemporary art is openness and processuality. Rather than predictability or control there it is obliged to experiment, where it presupposes some level of unpredictability and were it counts on getting information (some new data and knowledge), which would perhaps direct further course in unplanned direction. Contemporary "work of art" is therefore a work in progress. It could be claimed these characteristics are related to contemporary consciousness that there is no absolute way to the truth and that there is no universal knowledge, but we are in a sphere of endless disentanglement and interweavance of horizons of interpretation or understanding (Gadamer speaks about endless conversation)[10], nevertheless we are bounded to finity of each and every human experience.

From the nineties appears an increased amount of art projects that include and manipulate living components. Although utopian beliefs in artistic intervention, which have their origins in the avant-garde art, are over, in the so-called post-historical age (Danto, Belting) we still expect to recognize the society and ourselves in art, and perhaps we also expect art to change us and our view on the world. Bio Art undoubtedly deals with current social and anthropological topics. Jeremy Rifkin, the first name of the movement against uncritical acceptance of genetic technology, claims that industrial age has finished and that we are entering a new era, radically marked with biotechnology, and one in which the perception of ourselves and the society will completely change.[11] Genetic engineers and informational technologists have joined their potencies and the result was a biotechnological revolution. Biology got the character of informational science and has fundamentally reorganized its cognitions. A new branch was founded – bioinformatics, in the centre of which there was a genetic code. And genetic code became (the *axis mundi*) the centre and the temple of gene-centric world of genetic determinism.

In 1953 the structure of DNA was known, in June 2000 a rough sketch of human genome was written – 5 years earlier than it was predicted. In 1997 Dolly, the first so-called cloned sheep was born. Even a human clone should already be born. But Dolly died too

soon. The modern project of the disenchantment of the world did not succeed (yet). We have not attained the absolute knowledge, actually. On the contrary – we only have realized that this project is at least questionable. We became aware that the biology related questions will not end with the gene – they will only start arising with it. It could be that what happened was what Mladen Dolar explains: "The teleological aim, where this great narration [of Hegel's] should come to en end, is proven to be en empty point."[12] In other words, we could say that the knowledge has finally failed with its ascending to the absoluteness – at the point when knowledge should reaches the point of the absolutness it actually realizes this is an empty point and maybe it is directed to start ascending again (as Dolar suggests), or it could also be that the structure of its comprehension has entirely changed with the new cognitions – specially about progress and rationalisation. Anyhow, the code of man, written almost in whole, was published in the beginning of 2001 in two reputable magazines – *Nature* and *Science*.[13] It came out that man has only 30.000 to 40.000 genes and not 120.000 to 140.000 as it was thought before. That means that man has hardly anything more genes than microscopically small worm, which only has 1.000 cells and has no brain (which has 19.000 genes) or that man has only three-times more genes than wine-midge. The results have not only shocked the laics but also the genetic experts. Journals worldwide commented: little more than a worm, humiliated crown of the creation, insult and similar. The high listed shares of the biotechnological companies at the stock exchange have steeply fallen.

Biotechnology denotes contemporary (above all western) society and culture. It is present in all spheres of contemporary life: we consume genetically changed products, in medicine we use products of tissue engineering, we are confronted with a possibility to clone an animal, even to clone a man. Our environment and lives will only change more with the mediation of the biotechnology in the future. Possibilities as artificial production of meat, body parts and even limbs follow, we will be able to improve and widen the possibilities of body changing and similar; options of selective breeding or possibilities of reproduction are opening. But we also have to face a fact of increasingly improved (social) surveillance of over an individual.

A wide range of problems and questions could be quickly indicated with a short and schematic introduction of some art projects that include living material and significantly discuss the biotech related topics. As it was explained already in the nineties transgenic art is a new form of art based on the use of genetic engineering to transfer natural or synthetic genes to an organism, to create unique living beings. This must be done with great care, as Kac writes, with acknowledgement of the complex issues thus raised and, above all, with a commitment to respect, nurture, and love the life thus created.[14] In 2000 Kac has realized his project *GFP Bunny* (Green Fluorescent Protein Bunny), which was first presented to the public the same year in Avignon (France). Kac created an albino rabbit, called Alba. She has no skin pigment, therefore under ordinary environmental conditions she is completely white with pink eyes. But she glows green when illuminated with the correct light (that is blue light with maximum excitation at 488 nm). She was created with EGFP, an enhanced version of the original wild-type green fluorescent gene found in the jelly-fish *Aequorea Victoria*. The project was realized with assistance of microbiological scientists. Only to mention, one of them, the zoosystemician Louis Bec, was also a great friend of the late Vilém Flusser. Anyhow, Kac conceptualized three

phases of the project – in the first phase a GFP rabbit was created and named. The name was chosen by Eduardo, his wife and daughter. The second phase consisted in a public presentation and debate. The third phase meant that Alba travels with the family to Chicago, becoming a member of the family and starts living with them in an environment, designed to maximize her comfort. Kac writes: "My transgenic artwork 'GFP Bunny' comprises the creation of a green fluorescent rabbit (named *Alba*), its social integration, and the ensuing public debate."[15]

Figure 1. *Eduardo Kac.* GFP Bunny. The posters (43 x 28 cm each) were posted by Kac on the streets of Paris in December 2000.

With the *GFP Bunny* project Kac has opened a wide social debate on genetically manipulated organisms in our living environment, but also in general on the role of biotechnology in our lives. The issues on domestication of wild and cloned animals or living species, the concepts of family, ethics, science and art were discussed, as also questions about selective breeding were opened. The project significantly brought into consciousness the awareness about the importance of biotechnology in our culture and about the mostly yet unanswered questions arising with biotechnological manipulation.

In the same year (2000) Marta de Menezes presented her work *Nature?*, which also discusses similar topics. For this project Marta de Menezes manipulated the wing patterns of the butterflies and has created such that were never seen in nature before. This has been achieved by interfering with the normal developmental mechanisms of the butterflies who remain natural (their wings are made of normal live cells) and at the same time artistically designed. Recent advances in developmental biology allow interference with normal developmental programs and thus enabling the creation of new live

organisms. Creating animals with characteristics that have never been seen in nature before has become a common practice in scientific laboratories.

Figure 2. *Marta de Menezes.* Nature? Manipulation of wing patterns of the butterflies. 2000.

The Cosmopolitan Chicken project by Koen Vanmechelen, dated in 2005 actually started in 2000, when Koen Vanmechelen cross-bred two species of chicken – a Belgian and a French one (the Belgian chicken "Mechelse Koekoek" (cuckoo of Malines) with the French pride "Poulet de Bresse"). The idea of *The Cosmopolitan Chicken* project is to cross-breed different national chicken races. The cross-breeding is here understood as the quintessence of the dynamic, fertile and creative life and of the peaceful living together of different races.

Figure 3. *Koen Vanmechelen*. The Cosmopolitan Chicken project. Cross-breeding of different national chicken races. Verbekene Foundation, Kemzeke (B), 2007.

Philip Ross, one of the most intriguing bio-artists, uses living organisms as the inspiration and means for his work. Through the design and creation of highly controlled environments, Philip Ross nurtures, manipulates and transforms a variety of living species into usually processual sculptures or installations. Though natural in their materiality, these artworks also exhibit obvious human design. His desire is that a person encountering this living artwork will consider biological phenomena and entities within a frame of social and historic contexts. He designed and constructed a series of hydroponic gardens: *Jarred In* (2002), *Juggernaut* (2004) and *Junior's Return* (2005). The basic idea for these projects is to make a device that would integrate all the life support functions necessary for growing a plant directly into the container that held it. For those ideas Ross has drawn on two divergent traditions: Chinese scholar's objects and Victorian glass conservatories, which share the belief that nature is best understood when seen through the lens of human artifice. The plants in these gardens live within technologized cocoons, Ross explains, effectively isolated from their environments and demanding a great amount of electricity and material support to remain healthy.[16]

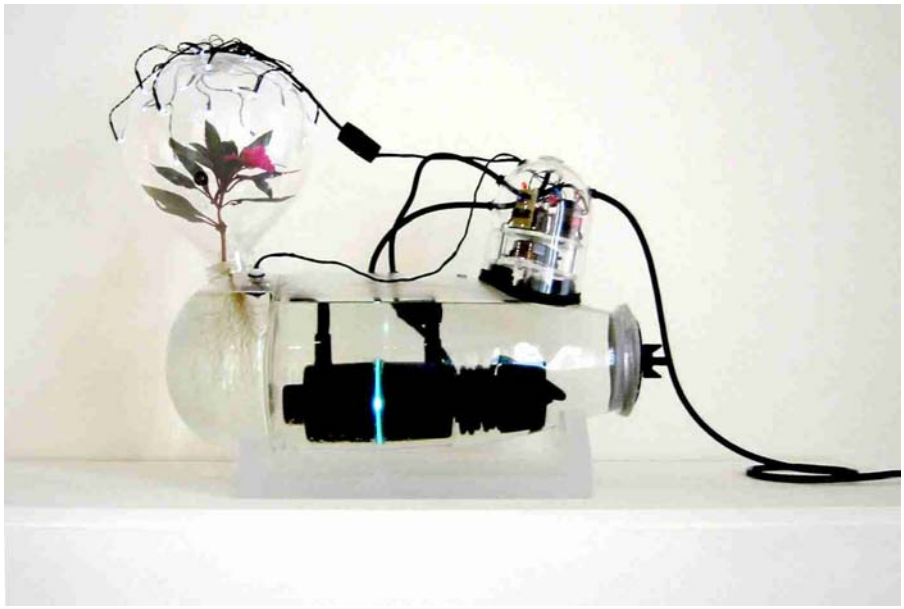

Figure 4. *Philip Ross*. Juggernaut, 2004. A hydroponic garden.

For the project *Pure Culture* (2001) Ross was cultivating living fungus (Ganoderma lucidum). These dense, wood like fungi were grown to resemble classic architectural icons, taking form over a nine month period and exhibited while still alive. The process is similar to the way a Bonsai tree is grown; controlling the light, gravity, air, water, and warmth that each organism is exposed to. One of these was coaxed to take the form of a cathedral dome; another refers to Harold Edgerton's famous photographic image of a splash of milk.

Figure 5. *Philip Ross*. Pure Culture, 2001. Cultivating living fungus (Ganoderma lucidum).

Bio Art with its manipulation of the mechanisms of life assumes a very wide variety of forms with the respect to discourse and techniques. Jens Hauser, a curator of the *L'Art Biotech* show (2003, Nantes) is however noticing that the "former fascination with the

'code of life' is receding and making way for a phenomenological confrontation with wetwork."[17] Wetworks are manipulating true living material in the present time.

An observer entering a special conditioned installation containing living components is entering a disturbing atmosphere, especially if the elements are originating from human body. For the project *37°C* (Polona Tratnik, 2001) an observer enters a dark and warm installation space, where the conditions from inside the body are simulated, therefore he/she is in a way entering a womb (again). This cultivation space is saturated with the presence of (artificially cultivated) life. Such a situation asks us, as Mojca Puncer suggests, "what we can say about the materiality of the body if exactly because of this materiality we can never fixate the body in a simple object of thinking."[18]

Figure 6. *Polona Tratnik*. 37°C, 2001. Cultivating living human skin cells.

Could we insist there exists individual's intimate space, quite isolated from the common space-tissue if we consider human being not as the one, which looks at the world from afar or from the outside, but as a substance, which is immersed into the world as for instance Maurice Merleau-Ponty believed? He claimed things reciprocally belong to each other and thus form the same flesh, which is the flesh of the world.

Micro organisms as bacteria and fungi not only enter human organism, but also get out of it into the environment. Such a micro world is a peculiar inner world of a human body. Not only because some species actually live inside the human organism, but above all because all these species that live with the body, are found directly on, or in it, which means they are actually a part of it and also help to maintain a healthy balance of the organism as a whole. When they traverse from the body into the surroundings or from the surroundings into or onto the body, the body truly traverses into surroundings as well as the surroundings into the body. Where is then the dividing line of the body and does a cortex of our organism really exist?[19] A cortex would mean an external, dead layer of flesh. But our flesh with a horny layer of skin tissue is far from being dead – this layer is full of life that belongs to us and is at the same time carrying out an exchange with the surroundings. This is a realm of giving and taking between a body and an environment into which it is immersed. It is a realm where an expansion of the interior into the exterior occurs as well as an entrance of an outside into an inside.

Figure 7. *Polona Tratnik*. Unique, 2006. Cultivating micro organisms originating from observer's bodies.

By establishing proper conditions a platform for an independent further living of the seceded living elements is enabled. On the one hand, microorganisms or cells originating from human body transferred into this "art-ificial" living environment of my installations begin their autonomous life. There is another perspective on human body gained if elements are taken from human body and are transferred into "external" environment but yet continue to live there.[20] An observer is thus enabled to be observed externally, as the other. "An expropriation and a conflict between internal and external feeling of the self arises [Maurice Merleau-Ponty ("The Child's Relations with Others", in: *The Primacy of Perception*, Cambridge, 1987, pp. 125) and Jacques Lacan ("The Mirror Stage as Formative of the Function of the I as Revealed in Psychoanalytic Experience", in *Écrits: A Selection*, New York: W. W. Norton & Co., 1977, pp. 6) on mirror stage or primacy of perception], which can cause narcissistic pleasure, although it can also evoke aggressive feelings. /…/ When we recognize that we are looked at and judged by the other, this brings about negative feeling – shame [Jean-Paul Sartre, *Being and Nothingness*, New York: Washington Square Press, 1966, p. 320]."[21]

On the other hand the act of transferring living components from human body and enabling them to live separately from the body in a substitutional "organism" is enabling the operator of this environment to attain complete control over the living material. He/she is actually gaining more and more power (over the living world in general) as also the reach of manipulation is specializing and getting even more precise with advances in scientific knowledge and advances in sophisticated technologies.[22] In such a manner a basic human tendency for using biotechnology is revealed, which is to gain total power and control over himself, environment, natural process, living world and world as a whole or actually over everything. It seems man is constantly attempting to be the player and not the player. Nevertheless, the question arises whether it could therefore also be claimed that our civilization is still clinging to totality and absoluteness. Perhaps it could also be said we would still want to get freedom with absolute knowledge and (technological) progress, with which we contest against our fears of weakness or powerlessness, and with which we are on the other hand gaining even greater responsibility.

[1] Flusser, Vilém, "On Science", Artforum, New York, October 1988, 9.
[2] Hauser, Jens, "Bio Art – Taxonomy of an Etymological Monster", in: Christine Schöpf, Gerfried Stocker (ed.), *Catalog Ars Electronica 2005: Hybrid – Living in Paradox*, Ostfildern-Ruit: Hatje Cantz Verlag, 2005, 184.
[3] Jameson, Fredric, *Postmodernism, or, The Cultural Logic of Late Capitalism*, Durham: Duke University Press, 1991.
[4] Vattimo, Gianni, *La Fine della Modernita*, Milano: Garzanti Editore s. p. a., 1985.
[5] Vattimo, Gianni, *The Transparent Society*, Cambridge: Polity Press, 1992, 1.
[6] Parallels to contemporary non-autonomous, hybridised, heterogenoius and organisationally heterogenous art or "contentual" art (where it has become relatively unimportant if it is called art at all) are nowadays often drawn to the art from the times "before the age of art" (Danto, Belting) that is before art has set out on a journey to autonomy or art from before the modern age. I discuss these topics extensively in my PhD thesis titled *Understandings of the End of Art – from Hegel to Danto* (Faculty of Humanities Koper, University of Primorska). Comparisons of contemporary situation to pre-modern one were also performed for the sphere of science or production of knowledge (Gibbons, Michael, Limoges, Camille, Nowotny, Helga, Schwartzman, Simon, Scott, Peter, Trow, Martin, *The New Production of Knowledge : The Dynamics of Science and Research in Contemporary Societies*, London, Thousand Oaks, New Delhi: Sage Publications, 1994). Ženko introduces the concept of new mode of production of knowledge to aesthetics. Mode-2 art is thus "art before it achieved its autonomy, before it became *art for art's* sake. In this sense it is not new, and it could even be claimed that somehow it is not at all art," Ženko writes. See: Ženko, Ernest, "Mode-2 Aesthetics", in: *Filozofski vestnik*, Ljubljana: Filozofski inštitut ZRC SAZU, Nr. 2/2007, 113.
[7] Flusser, Vilém, *Digitalni videz*, Ljubljana: Študentska založba, 2000.
[8] de Mul, Jos, "The Work of Art in the Age of Digital Reproduction", panel: *Digital Arts and Digital Aesthetics*, at: XII. International Congress of Aesthetics, Ankara (TR), 11th July 2007.
[9] Weibel, Peter, "Life – The Unfinished Project", in: Gerbel, Karl, Weibel, Peter (ed.), *Ars Electronica 93: Genetische Kunst – Künstliches Leben/Genetic Art – Artificial Life*, Wien: PVS Verleger, 1993, 10.
[10] Gadamer, Hans-Georg, *Wahrheit und Methode*, Tübingen: J. C. B. Mohr, 1960.
[11] Rifkin, Jeremy, *The Biotech Century : How Genetic Commerce will Change the World*, London: Phoenix, 1998.
[12] Dolar, Mladen, *Heglova fenomenologija duha 1.*, Ljubljana: Društvo za teoretsko psihoanalizo, 1990, 9. (trans. P. T.)
[13] *Nature* published the results of the public financed research of the group of scientists, gathered in an International Human Genome Sequencing Consortium or the Human Genome Project; and *Science* published the results of the private biotechnological project Celera.
[14] As Eduardo Kac for example writes in the article: "Transgenic Art", Leonardo Electronic Almanac, Vol. 6, Nr. 11, 1998.
[15] Kac, Eduardo, "GFP Bunny", in: Aleksandra Kostić, Peter Tomaž Dobrila (ed.), *Eduardo Kac: Telepresence, Biotelematics, Transgenic Art*, Maribor: association for culture and education Kibla, 2000, 101–129.
[16] Ross, Philip in: Tratnik, Polona (ed.), *Break 2.3: New Species*, Ljubljana: Zavod K6/4, 2005, 93.
[17] Hauser, Jens, "Bio Art – Taxonomy of an Etymological Monster", 183.
[18] Puncer, Mojca, "A Story about Hair", v: *Polona Tratnik: Hair*, Ljubljana: Galerija Kapelica, Museum of Modern Art, Galerija Miklova hiša, 2005, 13.
[19] I discuss the problem of boundaries between body and surrounding as also between life and death in "37°C: From the Inside of a Being to the Thin Line of Life" (in: *Leonardo*, Cambridge: MIT Press, Volume 38, Issue 2, April 2005) as life "is difficult to define unequivocally," and we could raise a question of universal criterion for it (see: ibid., 107).
[20] For the *Unique* project the visitors are donating samples of micro organisms from their bodies – the micro-cultures are then processually cultivated in the properly designed installation space, so that the donated micro organisms grow into colonies and become clearly visible with naked eye. See: www.ars-tratnik.si.
[21] Tratnik, Polona, "Carne del mundo / Flesh of the World", in: *A mínima*, Barcelona: Espacio Publicaciones, S. L., Nr. 18/2006, 17.
[22] For the *Hair* project (which was first presented in 2005, see: www.ars-tratnik.si) specially designed technology for growth of hair was developed. Hair seceded from the body were thus grown separately in autonomous environment, where they got supply of nutrient serum (from the same donor's blood) artificially. In 2007 the *Hair* project is being further proceeded and even more topics are being evolved.