I LEVITATE, WHAT'S NEXT...
LEBDIM, KAJ POTEM...

edited by
uredila
ALEKSANDRA KOSTIÆ

"Gravitation is undoubtedly the most important order-forming force of our existence."

Herman Potoènik-Noordung, 1929

"Gravitacija je nedvomno najva nejša redotvorna sila našega bivanja."

PREFACE

Aleksandra Kostiæ

The TOX edition - a timetable through three millenniums, takes the set course of a contemporary presentation of art, science, technology and social science. The previous book dealt with the telecommunication and transgenic art of Eduardo Kac, which was published prior to the media announcement of the greatest scientific achievement following the landing on the Moon, the revolutionary discovery of the human genome.

The current book from the TOX edition, the seventh in the series of published books, deals with the term levitation. The book I levitate, what's next... comprises essays, research and thoughts of acknowledged international writers and artists, who are introducing a new cognitive theory and practice deriving from experimentation.

The artistic action of Dragan Živadinov and the Noordung Cosmokinetic Cabinet that had a few-minute performance Zero Gravity on the Iljušin 76 MDK plane in a parabolic flight near Moscow provides the occasion for the given topic. From the perspective of the year 2000, their levitation in a time delay raises memories of cosmonautic zero gravity, limited human living conditions and science fiction, which is already being rendered part of accessible reality.

I invited dr. Rachel Armstrong, Stelarc, Eduardo Kac, Ken Goldberg, Martin Jay, Mario Ramiro and Simon Biggs to take part in exposing levitation from different perspectives. The concept of the book remained open. Each approached the problem, or a corresponding one, from a different perspective. I added to their texts an anonymous text selected by Dejan Štampar, as well as my own text.

UVOD

Aleksandra Kostiæ

Zbirka TOX - vozni red po treh tisoèih, nadaljuje zastavljeno smer sodobnega povezovanja umetnosti, znanosti, tehnologije in družboslovja. Prejšnja knjiga je obravnavala telekomunikacijsko in transgensko umetnost Eduarda Kaca, ki je izšla tik pred svetovno medijsko objavo najveèjega znanstvenega dosežka po pristanku na Luni, revolucionarnim odkritjem èloveškega genoma.

Prièujoèa knjiga iz zbirke TOX, sedma po vrsti, se ukvarja s pojmom lebdenja. Knjiga Lebdim, kaj potem... združuje eseje, raziskave in misli priznanih mednarodnih piscev in umetnikov, ki uvajajo novo spoznavno teorijo in iz eksperimenta izhajajoèe prakse.

Povod za izbrano temo je bila umetniška akcija Dragana Živadinova in Kozmokinetièenega kabineta Noordung, ki so na letalu Iljušin 76 MDK v parabolièenem letu v bližini Moskve uprizorili nekajminutno predstavo Gravitacija niè. Z gledišèa leta 2000 njihovo lebdenje v èasovnem zastoju obuja spomin na kozmonautsko breztežnost, na omejenost pogojev èloveškega bivanja in znanstveno fantastiko, ki že postaja del dostopne realnosti.

Da bi osvetlili lebdenje z različnih povezovalnih vidikov, sem povabila k sodelovanju dr. Rachel Armstrong, Stelarca, Eduarda Kaca, Kena Goldberga, Martina Jaya, Maria Ramira in Simona Biggsa. Koncept knjige je bil odprt. Vsak je videl problem ali navezavo nanj na drugaèen naèin. Njihovim besedilom sem dodala še tekst anonimnega pisca po izboru Dejana Štamparja ter lastnega.

Lebdenje se ves èas navezuje in prepleta z drugimi vsebinami in ni nujno ves èas v ospredju. Izlušèene vsebine so: lebdenje kot koncept 15. stoletja, teleskopski pogled v vesolje, Noordungova teorija v

Levitation is constantly in relation to and intermingling with other contents, and is not necessarily the central topic. The extracted contents are the following: levitation as a 15th-century concept, the telescopic view of outer space, the Noordung theory in relation to Ši vadinov's action, an open question of the levitation epistemology, an overview of the levitation concepts in 20th-century art, the levitating objects of Mario Ramiro, the astonishing functioning of the magnetic resonator, how Homo sapiens transforms into a cosmic being, Stelarc's experience of a suspended body and the special levitation capsule of Mariko Mori.

I would like to thank all those who cooperated in the makings of this book, and to the readers a multitude of delight.

navezavi z Šivadinovo akcijo, o odprtem vprašanju epistemologije lebdenja, pregled konceptov lebdenja v umetnosti 20. stoletja, lebdeèi predmeti Maria Ramira, o osupljivem delovanju magnetnega resonatorja, o tem, kako se homo sapiens spreminja v vesoljsko bitje, Stelarcove izkušnje obešenega telesa ter svetlobni lebdilnik Mariko Mori.

Zahvaljujem se vsem, ki so sodelovali in pomagali pri nastanku knjige. Bralcem pa želim obilo užitkov!

LEVITATION AS A 15TH-CENTURY CONCEPT

Simon Biggs

Angels and Dante. A wondrous marriage.

Flight is not singular. Ascent and descent are equivalent.

To fall is to fly. To fly is to fall. Falling up, flying down. All the same.

In a Sadian[1] universe difference does not exist. The moon is the same as the Mindanao Trench[2]. Distance is what matters, not direction.

Botticelli illustrated the ascent/descent of humankind. Dante's text supplied the inspiration. The story of flight follows on from there, whether the Wright Bros. or 2001[3]. A 15th-century concept really.

In respect of human flight, the only domain is the domain of the imagination. People cannot fly. Birds fly, machines fly, but people do not fly. They can be flown, but they will never fly, no matter how much they desire it. Humans do not have wings, and they never will, even whilst they might believe they do.

Blake in his Marriage of Heaven and Hell confronts our desires, amongst them the conceit of flight. No more needs to be said on this subject.

Beware!

[1] Sadian as in the Marquis de Sade, a well-known French cultural commentator, revolutionary and sexual maniac. When I refer to a Sadian Universe I mean a universe where all values are relative, where there is no moral system of absolutes but a recognition that notions of right and wrong are only culturally determined as a consensus.

LEVITACIJA KOT KONCEPT 15. STOLETJA

Simon Biggs

Angeli in Dante. Èudovita poroka.

Polet ni nekaj izjemnega. Vzpon in padec sta enakovredna.

Padati je leteti. Leteti je padati. Padati gor, leteti dol. Èisto vseeno je.

V Sadovem[1] vesolju razlike ne obstajajo. Luna je taka kot jarek Mindanao[2] na Filipinih. Kar je pomembno, je razdalja in ne smer.

Boticelli je poslikal vzpon/padec èloveštva. Dantejevo besedilo mu je slu□ilo kot navdih. Zgodba o poletu sledi od tukaj naprej, pa naj bosta to brata Wright ali 2001.[3] Pravzaprav je to koncept 15. stoletja.

Kar se tièe èlovekovih poletov, je edina domena domišljijska domena. Ljudje ne morejo leteti. Ptièi letajo, stroji letajo, toda ljudje ne letijo. Lahko jih kdo prepelje, toda sami nikoli ne bodo leteli, ne glede na to, koliko si to □elijo. Ljudje nimajo kril in jih nikoli ne bodo imeli, èeprav morda sami verjamejo, da jih imajo.

Blake se v svoji Poroki nebes in pekla sooèa z našimi □eljami, med katerimi je tudi misel o letenju. Niè veè ni potrebno dodati na to temo.

Pazite se!

[1] Sadovem kot Markiz de Sade, znani francoski kulturni razlagalec, revolucionar in seksualni obsedenec. Ko govorim o Sadovem vesolju, mislim na vesolje, kjer so vse vrednote relativne, kjer ne obstaja noben moralni sistem absolutnega razen spoznanja, da so predstave o tem, kar je pravilno in napaèno, samo kulturno pogojen dogovor.

[2] The Mindanao Trench is a deep hole in the Pacific Ocean, near the Philippines, that is the deepest in the world (8 km). I am trying to compare the highest point (the Moon, 250,000 km) with the lowest (the Mindanao). It is meant poetically.

[3] The same is what I am trying to suggest with my reference to the Wright Bros (two American brothers who built and flew the first airplane) and 2001 (a visionary film about the idea of flight and how each relates to human desire - and thus my reason for referring to de Sade, who was an expert on human desire).

Simon Biggs (1957, Adelaide) is a digital artist, teacher, writer and curator for digital visual arts. As an artist, his initial works were with classical visual media. At the end of the 1970s, he started to use computers to create images. He soon developed a graphics dedicated computer system together with his father, a computer scientist. In the 1980s, he focused his efforts entirely on the digital arts, on computer based interactive installations, animations, cd-roms, the web and related media (e.g. a performance with Perks digital media, together with a digital violinist, John Rose). Biggs writes his own software programs for his artworks and for cd-roms from the artistic field of dancing. His most important works are the Book of Shadows, the Great Wall of China, the Magnet and the Halo. Biggs is most inspired by medieval dualistic spiritualism. See more on: www.easynet.co.uk/sbiggs.

[2] Jarek Mindanao je globoko brezno v Tihem oceanu blizu Filipinov, ki je najgloblji na svetu (8 km). Skušam primerjati najvišjo toèko (Luna, 250.000 km) z najniljo (Mindanao). Primerjava je poetièna.

[3] Podobno skušam doseèi, ko omenjam brata Wright (ameriška brata, ki sta izdelala prvo letalo in z njim tudi poletela) in 2001 (vizionarski film o ideji letenja in kako se vsak od njih nanaša na èloveško lelje - odtod tudi moji razlogi za omenjanje de Sada, ki je bil strokovnjak za èloveške lelje).

Simon Biggs (1957, Adelaide) je digitalni umetnik, uèitelj, pisec in kustos. Kot umetnik je deloval najprej na podroèju klasièniih medijev, konec 70. let zaèel uporabljati raèunalnike za ustvarjanje podob in kmalu nato skupaj z oèetom, raèunalniškim znanstvenikom razvil njun lastni grafièni raèunalniški sistem. V 80. letih se je popolnoma osredotoèil na digitalno umetnost, raèunalniške interaktivne instalacije, animacije, cd-rome, splet in sorodne medije (npr. nastop z digitalnimi mediji Perks, skupaj z elektronskim violinistom Johnom Rosem). Biggs vsa lastna umetniška dela in cd-rome s podroèja plesa sprogramira sam. Med najpomembnejša dela sodijo Knjiga senc, Veliki kitajski zid, Magnet in Sij. Biggsa velikokrat navdihuje srednjeveška dualistièna spiritualnost.
Veè na: www.easynet.co.uk/sbiggs.

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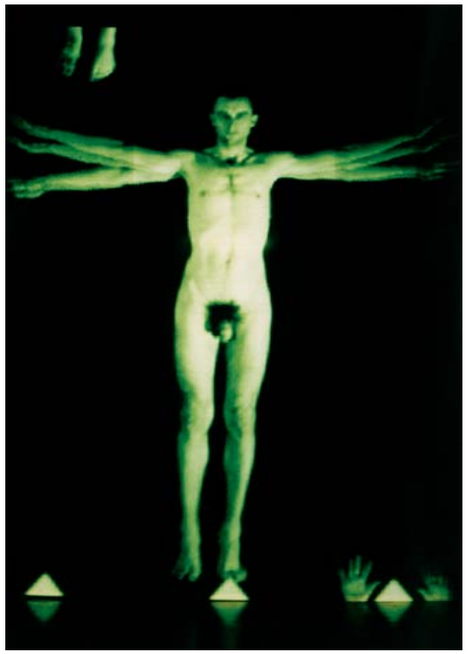

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Slike:

1. Magnet, 1997 (Kibla, Maribor)*
2. Èakalnica, 1998
3. Angeli, 1994
4. Padanja, 1996

*photo/foto: Dejan Štampar

Simon Biggs:

Images:

1. Magnet, 1997 (Kibla, Maribor)*
2. The Waiting Room, 1998
3. Angels, 1994
4. As Falling Falls, 1996

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TIME AND SIGHT; PERCEPTION WITH THE HELP OF A TELESCOPE AND VIRTUAL REALITY

Martin Jay

Stars and galaxies are many light-years away from us. The light takes some amount of time. In the case of stargazing, we literally see, instead of the present or proximate future, no longer existing images. The images collected by the mirrors of the reflecting telescope and then preserved on photographic plates are like memory traces without any single temporal location.

Ole Roemer

Tycho Brahe

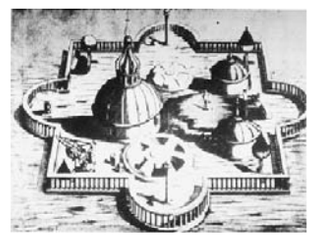
In September 1676, the Danish astronomer Ole Roemer (1644 - 1710) presented the recently created French Academy of Sciences with an audacious prediction. Successfully fulfilled two months later, it profoundly transformed not only the study of the heavens, but also the self-understanding of the humans who gazed at them in wonder. Roemer had been working at the observatory of Uraniborg set up by his illustrious predecessor Tycho Brahe on the island of Hveen in the Baltic. His goal was the discovery of a precise astronomical clock for nautical navigation, but the unintended consequences of his efforts were far more momentous. On the basis of his observations, he predicted that the eclipse of the innermost of Jupiter's moons, Io, expected on November 9th at 5:25 and 45 seconds, would take place ten minutes later than had been calculated based on earlier sightings of the same phenomenon. He further reasoned that a similar delay would take place with the passage of the moon from behind Jupiter's shadow - what astronomers call its *emersion* as opposed to its *immersion* - on November 16th. These ten minutes delays, he claimed, were due to the time it would take for the light from the eclipse to reach the earth, which is a longer interval than in the previ-

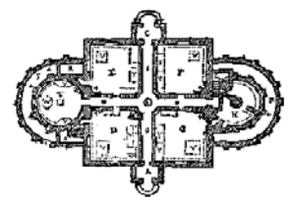
ÈAS IN VID; ZAZNAVA S POMOÈJO TELESKOPA IN NAVIDEZNE RESNIÈNOSTI

Martin Jay

Zvezde in galaksije so od nas oddaljene veè svetlobnih let. Svetloba namreè za svojo pot potrebuje èas. Ko opazujemo zvezde, ne vidimo sedanjosti ali bliline prihodnosti, dejansko vidimo tisto, èesar ni veè. Podobe, ki jih ustvarijo ogledala teleskopa in so ohranjene na fotografskih plošèah, so v resnici spominske sledi brez kakršnekoli èasovne umestitve.

Septembra 1676 je danski astronom Ole Roemer (1644 - 1710) pred èlani takrat še nedavno ustanovljene Francoske akademije znanosti izrekel drzno napoved. Dva meseca kasneje se je le-ta uresnièila in popolnoma spremenila tako preuèevanje neba kot ljudi, ki so zrli v èudesa nad sabo. Roemer je delal v observatoriju v Uraniborgu, ki ga je na baltiškem otoku Hveenu ustanovil njegov znani predhodnik





Uraniborg

Tycho Brahe. elel je odkriti natanèno astronomsko uro za pomorsko navigacijo, toda nenaèrtovane posledice njegovega odkritja so bile veliko pomembnejše. Na podlagi svojih opazovanj je napovedal, da bo mrk Jupitrove najblije lune, Io, napovedan za 9. novembra ob 5:25 in 45 sekund, nastopil deset minut kasneje, kot so prièakovali glede na prejšnje ponovitve istega pojava. Napovedal je celo, da bo do podobnega èasovnega zamika prišlo tudi 16. novembra pri prihodu lune iz Jupitrove sence (astronomi pojav imenujejo *emerzija*, kar je obratno od *imerzije*). Do desetminutne zamude naj bi po Roemerju prišlo, ker sta bila

ous recorded cases, since the earth was now at the far side of its orbit around the sun from Jupiter and thus significantly farther away from the giant planet than during certain earlier eclipses. Light, in other words, could now be shown to have a velocity of its own and not pass instantaneously from its source to its recipient, or in the vocabulary of the day, its speed could be confirmed as finite and not infinite.

Roemer's precise calculations of light's finite velocity were in need of some correction and fleshing out. He reckoned the time it would take to cross the diameter of the earth's orbit at twenty-two minutes instead of the somewhat more than sixteen minutes measured by later astronomers. And it was not until a year or so later that Christian Huygens actually divided the supposed diameter of the earth's orbit by the time it took for light to travel across it to arrive at an actual, if still imperfect, velocity of light or *c* (from the Latin *celeritas*). Nor was the entire scientific community fully and conclusively convinced by Roemer's claims until the experiments of the English astronomer James Bradley in 1728 concerning what he called *the aberration of light*, which involved measuring discrepancies in the parallax relations of certain stars.

However, with Roemer, there was for the first time hard empirical evidence to settle a debate that had exercised scientists and philosophers ever since the Greeks. Those theorists from Aristotle to Kepler, Cassini and Descartes, who had held to the notion of the instantaneous propagation of light, were refuted. Others, such as Avicenna, Alhazen, and Roger Bacon, who had speculated that it took some amount of time, were shown to have had the right hunch, even though they had had no verifiable evidence to back it up. Earlier attempts to provide such evidence by following Galileo's suggestion to open and shut lanterns at a distance of ten miles - an experiment actually tried by the Florentine Academy in 1667 - had failed because of the shortness of earthly distances and the slow reaction times of the humans operating the lanterns.

Jupiter in Zemlja bolj oddaljena kot ob prejšnjih mrkih. Z drugimi besedami, Roemer je dokazal, da ima svetloba hitrost, in tako ovrgel trditev, da kar skoèi od vira k sprejemniku. *Svetlobna hitrost* je bila torej potrjena za konèno in ne za neskonèno.

Jupiter and/in Io (photo by/posnetek: Hubble Space Telescope)

Vseeno pa je bilo potrebno Roemerjeve izraèune konène *svetlobne hitrosti* kasneje nekoliko izpiliti in popraviti. Izraèunal je, da bi svetloba premer Zemljine kroznice prepotovala v dvaindvajsetih minutah, kasnejši astronomi pa so dokazali, da potrebuje le nekaj veè kot šestnajst minut. Šele približno leto dni po Roemerjevih izraèunih pa je Christian Huygens razdelil premer Zemljine kroznice glede na èas, ki ga je svetloba potrebovala, da je dosegla dejansko (a še vedno nepopolno) hitrost *c* (lat. *celeritas*). Drugi znanstveniki še vedno niso popolnoma verjeli Roemerjevim trditvam, a so jih dokonèno preprièali poskusi angleškega astronoma Jamesa Bradleyja, ki je leta 1728 prouèeval *svetlobni odklon* in meril odstopanja v paralaksah doloèenih zvezd.

Vseeno je bil Roemer prvi, ki je s trdnimi dokazi posegel v razpravo, ki je znanstvenike in filozofe muèila vse od antiène Grèije. Teorije o tem, da svetloba za razširjanje ne potrebuje nobenega èasa, ki so jih zagovarjali tako Aristotel kot Kepler, Cassini in Descartes, so bile tako ovrzene. Avicenna, Alhazen in Roger Bacon, ki so menili, da svetloba za svojo pot potrebuje èas, so imeli torej prav, èeprav svojih predvidevanj niso uspeli podpreti s trdnimi dokazi. Da bi do takih dokazov prišli, so nekaj let pred Roemerjem, leta 1667, èlani Florentinske akademije po Galilejevem predlogu prižigali in ugašali lanterne na razdalji desetih milj in merili èas, a jim poskus ni uspel. Tovrstni poskusi so se izjalovili, ker so bile zemeljske razdalje prekratke, reakcijski èasi ljudi, ki so upravljali z lanternami, pa prepoèasni.

With the work of Roemer and Bradley on extra-terrestrial objects, that evidence now existed and soon won over the astronomical community with consequences that were ultimately of vast importance for the future exploration of the universe. Although less widely heralded, they were, as Hans Blumenberg puts it in The Genesis of the Copernican World, "just as momentous ... for the change in our consciousness of the world as the Copernican reform had been." It was now certain that despite their apparent size to the naked eye stars were distant suns more or less comparable to the one that shone so brightly in our daytime sky, a conclusion hypothesized but not proven before Roemer. It soon also became possible to begin conceiving of the previously inconceivable distances between stars, which were progressively revealed by the dramatic improvement of the telescope using immense mirrors by William Herschel around 1800, and which continue to expand with the recent discoveries of the Hubble space telescope. And it soon became possible to realize that not only were stars and galaxies many light-years away, but that, as William Huggins announced in 1868, some were receding from us at an astonishing rate of speed (or as *the Doppler-Fizeau effect* based on spectroscopic technology showed later in the century some were zooming towards us as well). *The speed of light* also provided a limit concept for physics, as no faster propagation of anything else in the universe has ever been found. In addition, the experiments of James Clark Maxwell in the late 19th century on electromagnetic waves showed that light travelled at a constant rate in a vacuum, which could not be accelerated or slowed down, although it did change if the medium were altered, say to glass.

These and many other consequences too technical for a soft-headed humanist to present in detail followed from the discovery of the fact that light can travel 186,000 miles or 300,000 kilometres a second and six trillion miles or 9.5 trillion kilometres a year. Although the 20th century had new surprises in store when Einstein's Special Theory of Relativity argued that the speed of light was the one exception to the rule that velocities were relative to the movement of the viewer and

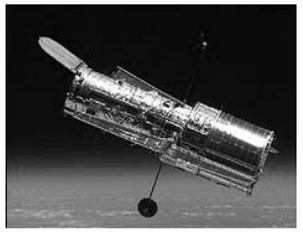
William Herschel

Herschel's telescope/Herschlov teleskop

Roemerjevo in Bradleyevo delo o izvenzemeljskih objektih je prineslo prve dokaze, ki so astronome preprièali in tako usodno vplivali na kasnejše raziskovanje vesolja. Èeprav sta manj znana, ju Hans Blumenberg v svoji knjigi Geneza Kopernikovega sveta (*Genesis of the Copernican World*) imenuje za "vsaj tako pomembna za spremembo v našem dojemanju sveta, kot je bila Kopernikova teorija." Zaradi njiju je postalo jasno, da so drobne zvezde v resnici daljna sonca, podobna tistemu, ki podnevi osvetljuje naše nebo. Kmalu so si lahko predstavljali tudi prej nepredstavljive razdalje med zvezdami in jih s še veèjo natanènostjo odkrivali z izboljšavami teleskopa, ki jih je z uporabo ogromnih ogledal dosegel William Herschel okoli leta 1800. Napredek na tem podroèju dokazujejo tudi zadnja odkritja vesoljskega teleskopa Hubble. Hitro so ugotovili, da so zvezde in galaksije od nas oddaljene veè svetlobnih let in da se - kot je leta 1868 naznanil William Huggins - od nas oddaljujejo z neverjetno hitrostjo (ali pa, kot je stoletje kasneje pokazal *Doppler-Fizeaujev efekt*, ki temelji na spektroskopski tehnologiji, brzijo proti nam). *Svetlobna hitrost* je v fiziko prinesla tudi koncept limite, saj èesa hitrejšega v vesolju še niso našli. Poleg tega so poskusi z elektromagnetnimi valovi Jamesa Clarka Maxwella v poznem 19. stoletju pokazali, da svetloba v vakuumu potuje s stalno hitrostjo in je ni mogoèe pospešiti ali upoèasniti, se pa spremeni, èe zamenjamo medij, na primer s steklom.

Vse te in še mnoge druge posledice, preveè zapletene, da bi jih kot preprost humanist sploh podrobno razlagal, so sledile iz odkritja, da lahko svetloba potuje s hitrostjo 186.000 milj ali 300.000 kilometrov na sekundo, ali 6 bilijoni milj oz. 9,5 bilijonov kilometrov na leto. Èeprav nas je v 20. stoletju èakalo še nekaj preseneèenj, ko je Einstein s posebno teorijo relativnosti dokazoval, kako za svetlobno hitrost ne velja

viewed, and the gravitational force of black holes was shown to effect its propagation, Roemer's discovery had repercussions that we are still feeling today.



Hubble Space Telescope (HST)/
vesoljski teleskop Hubble (HST)

The one in particular that I want to explore concerns not the vast distances of interstellar space nor the amazingly fast, but still finite and non-instantaneous, speed that light waves or photons - particles of electromagnetic energy - travel through it. I want to speculate on the implications of Roemer's discovery for the relation between time and the image. For it was quickly recognized - at least as early as 1702 and a lecture by the astronomer William Whiston - that not only was it now possible to see things that were very far away, but it was also possible to see them as they had existed an extraordinarily long time ago.

In this sense, the effect of the telescope was radically different from that of the other great ocular prosthesis of the early modern period, the microscope, which had no such temporal implication. Only the former could be called a genuine time machine, or in the words of a recent commentator, "a probe that can take deep soundings of time, back to the most ancient cosmos." By 1800, it was recognized that looking at the light from distant stars was gazing at something that had left its source before the very existence of the human race, indeed likely before the existence of the earth and perhaps even the solar system. By the late 20th century, some astronomers were talking about seeing almost as far back as the birth of the universe itself.

What can be called *astronomical hindsight* thus presented the viewer of the heavens with a remarkable conundrum? Sight is, after all, often understood to be the most synchronous and atemporal of the senses, capable of giving us a snapshot image of a world frozen in time, a trait that earned it the disdain of philosophers like Bergson who

pravilo, da so hitrosti relativne glede na gibanje opazovalca in opazovanega in da gravitacijska sila èrnih lukenj vpliva na njeno širjenje, posledice Roemerjevega odkritja kljub vsemu èutimo še danes.

Ena od teh posledic, s katero bi se rad natanèneje ukvarjal, ni povezana niti z neskonènimi medzvezdnimi razdaljami niti s konèno, nehipno hitrostjo, s katero fotoni (delci elektromagnetne energije) prepotujejo razdalje v vesolju. Roemerjeva odkritja so vplivala na odnos med èasom in podobo. Kmalu je namreè postalo jasno (le leta 1702 na predavanjih astronoma Williama Whistona), da lahko vidimo stvari, ki so izjemno oddaljene; in vidimo jih take, kot so bile pred izredno dolgo èasa.

Tukaj se pokaže tudi radikalna razlika med teleskopom in mikroskopom, drugim oèesnim pripomoèkom iz zaèetka modernega obdobja. Mikroskop namreè nima èasovne dimenzije, medtem ko lahko imamo teleskop za pravi èasovni stroj ali, kot je to povedal eden sodobnejših razlagalcev, za "sondo, ki sliši daljne zvoke èasa vse do starodavnega kozmosa". Do leta 1800 so spoznali, da svetloba daljnih zvezd izvira iz èasa pred samim obstojem èloveka, Zemlje in morda celo sonènega sistema. Tako so v poznem 20. stoletju nekateri astronomi govorili o tem, kako lahko le skoraj opazujejo samo rojstvo vesolja.

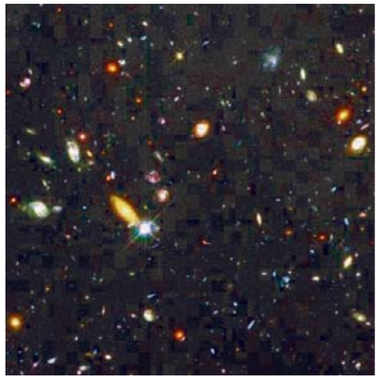
Astronomski pogled v preteklost je opazovalcem neba tako zastavil veliko uganko. Vid je namreè pogosto razumljen kot najbolj sinhron in atemporalen od vseh èutov. Podaja nam sliko sveta, zamrznjenega v èasu. Prav to lastnost so tisti filozofi, ki so cenili temporalnost in trajanje, na primer Bergson, najbolj zanièevali. Hans Jonas pravi: "Vid je na najvišji stopnji èut simultanosti in koordinacije, zato je tudi najobsežnejši. Pogled v trenutku zajame stvari drugo ob drugi, kot soobstojeèe dele vidnega polja. Tako nam že beležen pogled kot blisk razkrije svet soobstojeèih lastnosti, razporejenih v prostoru in nanizanih v globini neskonènih daljav ..." Régis Debray dodaja: "... slika, grafika ali fotografija se preko soobstoja njihovih delov izmaknejo linearnemu

valued temporal duration instead. As Hans Jonas typically puts it, "sight is par excellence the sense of the simultaneous or the coordinated, and thereby of the extensive. A view comprehends many things juxtaposed, as co-existent parts of one field of vision. It does so in an instant: as in a flash one glance, an opening of the eyes, discloses a world of co-present qualities spread out in space, ranged in depth, continuing into indefinite distance ..." Régis Debray adds that "a painting, an engraving, a photograph evade the linear succession of language through the co-presence of their parts. They are apprehended *en bloc* by the intuition, in an instantaneous perceptive synthesis – the *totum simul* of vision. A visual image arrests the flow of time like a syncope, contracts the string of moments." Although recent research has emphasized the scanning movement of the eye and its restless saccadic jumps and stressed the mobile glance over the medusan gaze, in comparison with other senses, vision still seems for many tied to the Parmenidean or Platonic valorisation of static, eternal Being over dynamic, ephemeral Becoming.

Or alternatively, vision is sometimes understood as the sense that gives us the best possible glimpse into the immediate future as we look out on the landscape that we are about to traverse, thus providing foresight about what may well come next. "Man's ability to plan," writes the anthropologist Edward T. Hall, "has been made possible because the eye takes in a larger sweep." Hans Jonas adds, "Knowledge at a distance is tantamount to foreknowledge. The uncommitted reach into space is gain of time for adaptive behaviour. I know in good time what I have to reckon with." Those who assume the exalted function of seer or visionary often claim the ability to foretell what they foresee in the distant future as well.

However, in the case of stargazing, what we see instead of the present or proximate future is the past, often an immeasurably deep past whose ontological status is unlike anything else that we experience in mundane existence. We literally see what is not, or rather is no longer.

zaporedju jezika. Dojemamo jih z intuicijo v hipni zaznavni sintezi - kot *totum simul* vida. Vidna podoba ustavi tok èasa kot sinkopa, ustvari kontrast v zaporedju trenutkov ..." Èeprav so zadnje raziskave izpostavile gibanje oèesa, ki podobo skenira, preskakuje s pogledom od ene toèke na drugo, in so v njih dali prednost okretnosti beline pogledov pred strmenjem Meduze, je vid za mnoge še vedno vezan na parmenidovsko ali platonovsko vrednotenje statiènega in veènega Biti pred dinamiènim, a kratkotrajnim Postati.



Hubble Deep Field - HST's view into the past: distant galaxies as they appeared billions of years ago /
Hubblovo Globoko polje - HST pogled v preteklost: oddaljene galaksije kot so se pojavile pred milijardo let.

Ali drugaèe, vid vèasih razumemo tudi kot èut, ki nam daje najboljši moèni vpogled v bliènjo prihodnost, medtem ko opazujemo neko pokrajino, preden se podamo vanjo. Tako prav s pomoèjo vida predvidimo, kakšno pot imamo pred seboj. "Èlovekova sposobnost naèrtovanja," pravi antropolog Edward T. Hall, "je moèna, ker je oko sposobno seèi tako daleè." Hans Jonas dodaja, da je "znanje na daljavo enakovredno predznanju. Neobremenjen pogled v vesolje nam omogoèa prilagajanje, saj pravoèasno izvemo, s èim se bomo morali spopasti." Tisti, ki se vzvišeno imenujejo za jasnovidce ali vedeèe, pogosto trdijo, da so zmoèni napovedati tudi tisto, kar vidijo v daljni prihodnosti.

Toda v primeru opazovanja zvezd ne vidimo sedanjosti ali bliènje prihodnosti, paè pa vidimo pogosto neizmerljivo daljno preteklost, katere ontološki status je popolnoma drugaèen od èesarkoli drugega, kar doživljamo v vsakdanjem življenju. Dejansko vidimo, tisto èesar ni, oziroma èesar ni veè. A vseeno ne gledamo le kasnejše reprodukcije ali

Yet we are not seeing a mere later reproduction or simulacrum of what once was, but rather the real thing delayed - sometimes enormously delayed - in time. We can have, however, absolutely no way of knowing whether or not that real thing still exists or has long since disappeared. The gap between appearance and essence, subjective experience and objective stimulus, *phenomenon* and *noumenon* yawns as wide as it can be. Instead of the infamous *metaphysics of presence* that deconstruction tells us is based on the logocentric, phonocentric and ocular centric prejudices of Western thought, we get an explicitly visual instantiation of the ghostly trace of the past in the present, but one that is neither an hallucination nor a technologically induced illusion.

There is, moreover, no possible way to apply the other senses, especially the touch that so often functions to verify or confirm the existence of the past objects we see, as Bishop George Berkeley claimed we must determine spatial location. In stargazing, the sense of sight is isolated from and privileged above the general human sensorium as perhaps in no other realm of experience. The oft-remarked link between abstracted theory and visual distance is given added weight by the impossibility of testing astronomical theories through non-visual means. Parallels between sight and touch, drawn for example by Descartes in his Optics, where he compared sight to the instantaneous transmission of an object through a blind man's stick, break down; how can you even imagine "touching" something that existed light years in the past and may no longer be there today?

The cultural implications of the discovery of *the speed of light* were no less profound than the scientific ones, although they may have taken longer to register. The famous blow dealt to man's narcissistic assumption of his pivotal place in the universe by the Copernican replacement of a geocentric by a heliocentric cosmos was intensified as it was realized that celestial objects had existed well before we were around to behold them. As Blumenberg notes, "man could no

simulakrov tistega, kar je nekoè bilo. Vidimo namreè obstojeèo stvar, a vèasih z ogromnim èasovnim zamikom. Nikakor pa ne moremo vedeti, ali ta stvar sploh še obstaja ali je le dolgo tega izginila. Prepad med izgledom in bistvom, subjektivnim izkustvom in objektivnim dražljajem, *fenomenom* in *noumenonom* je nepremostljiv. Namesto razvpite *metafizike prisotnosti*, za katero dekonstruktivisti trdijo, da temelji na logocentrièni, fonocentrièni in okularocentrièni predsodkih zahodne misli, dobimo izrazito vidni primerek grozljivih sledi preteklosti v sedanjosti. Ta predstava ni halucinacija ali tehnološko povzroèena iluzija.

Na žalost ni možno uporabiti drugih èutov, da bi z njimi (kot predlaga škof George Berkeley) doloèili prostorsko lokacijo. Posebno èut tipa bi bil dobrodošel, da bi z njim potrdili obstoj predmetov iz preteklosti, ki jih vidimo. Pri opazovanju in dolivljanju zvezd je vid od vseh èutov, ki so èloveku na voljo, najbolj izloèen in izvzet, bolj kot vse ostale domene našega bivanja. Pogosto opažena povezava med abstraktno teorijo in vizualno oddaljenostjo postane še pomembnejša, ko ugotovimo, da astronomske teorije ni mogoèe preverjati preko nevizualnih sredstev. Vzporednice med vidom in tipom, ki jih na primer našteva Descartes v svojem delu Optika (*Optics*), kjer primerja vid in hipno transmisijo objekta preko palice pri slepih, se tu torej podrejo. Le kako se lahko “dotaknemo” neèesa, kar je obstajalo svetlobna leta nazaj in morda danes sploh ne obstaja veè?

Posledice odkritja *svetlobne hitrosti* so se izjemno globoko - èeprav ne tako hitro kot na podroèju znanosti - urezale tudi v kulturo. Šok, ki ga je dolivelo narcisoidno èloveško domnevanje o svojem osrednjem položaju v vesolju, ko je Kopernik èloveka izrinil iz geocentrièna v heliocentrièno vsemirje, se je še okrepil s spoznanjem, da so nebesna telesa obstajala, še preden smo obstajali, da bi jih sploh lahko ugledali. Blumenberg opaža, da je "èlovek izgubil mesto prièe èudeža stvarjenja, saj je èas, ki ga svetloba potrebuje za pot od neznanih zvezd in zvezdnih sistemov do èloveka, daljši, kot obstaja svet." Že sprejeto dejstvo, da

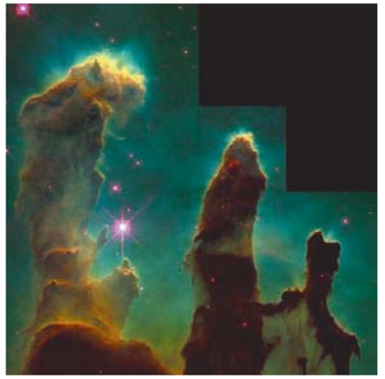
longer be the designated witness of the wonders of the creation if the time required for light to reach him from unknown stars and star systems was longer than the entire duration of the world." The already appreciated fact that the stars are that part of nature least amenable to human construction, domination or intervention because of the distances involved was given added weight by the stunning realization that not only space but time would have to be conquered for humans to make a difference.

One corollary effect of this realization was the increased erosion of belief, except among the most gullible, in the opposite assumption: that the stars could somehow causally intervene in human behaviour. How, after all, could astrological causation operate, if it were impossible to coordinate the time of a sublunary event, such as one's birth, with the temporal events in interstellar space? How could a plausible horoscope be written that took into account the radically divergent, multiple temporalities of stars whose light came from vastly different distances from the earth? Here too the link between the human present and the images of light in the night sky was rendered deeply problematic by *astronomical hindsight*, which reveals that constellations are not just spatial relationships, but temporal ones as well. The result, if Maurice Blanchot is right, may have extended beyond the superstitious belief in astrological correlations. Playing on the etymology of the word, he introduces the notion of *disaster* - literally, ill-starred - to designate "being separated from the star ... the decline which characterizes disorientation when the link with fortune from on high is cut." Disaster can thus be called "withdrawal outside the sidereal abode ... refusal of nature's sacredness."

The implications of that withdrawal were complicated still further by a later stage in the development of astronomy, the use of photography to record the faint light from distant stars that the human eye could not itself easily register. Here the opposite of the snapshot potential in the new technology, its medusan capacity to freeze flow-

so zvezde del narave in so zaradi svoje oddaljenosti najmanj dostopne èlovekovi želji po gradnji, prevladi in spreminjanju, je pridobilo na teži, ko je postalo jasno, da se bo moralo èloveštvo poleg prostora nauèiti obvladovati tudi èas, saj bo le tako lahko karkoli spremenilo.

Dodatni slabšalni uèinek teh spoznanj je bilo poveèano upadanje prepriècanja, razen pri tistih najbolj lahkomiselnih, v nasprotno smer: da lahko zvezde posledièno vplivajo na èloveško obnašanje. Kako naj bi prišlo do astroloških vplivov, èe pa je nemogoèe uskladiti èas zemeljskega dogodka, na primer rojstva, s èasovnimi dogodki v medzvezdnem prostoru? Kako je mogoèe napisati verodostojen horoskop, ki bi upošteval radikalno raznolike in številne temporalnosti zvezd, katerih svetloba je dosegla Zemljo iz razliènih daljav? Tudi tukaj se zveza med èloveško sedanjostjo in podobami svetlobe na noènem nebu pokaže kot zelo sporna, saj prav *astronomski pogled v preteklost* razkrije, da med konstelacijami ne gre le za prostorske odnose paè pa tudi za èasovne. Rezultat, èe naj verjamemo Mauriceu Blanchotu, se dviga preko vraževernih prepriècanj v astrološke korelacije. Ko se Blanchot igra z besedami, pride do ugotovitve, da angleška beseda *disaster* (*katastrofa*) dobesedno pomeni biti navzkriž z zvezdami, biti loèen od zvezd. "Loèenost od zvezd pa prinaša zmedenost zaradi prekinitve povezave s sreèo, ki prihaja od zgoraj." Nesreèo imamo tako lahko za nekakšen umik iz zvezdnega domovanja ali za zavraèanje svetosti narave.



Gaseous pillars in a star-formation region of the Eagle Nebula (HST)/
Plinasti stebri v Orlovi meglici, na podroèju, kjer nastajajo zvezde (HST)

Implikacije tega umika so postale še bolj zapletene s kasnejšimi odkritji v razvoju astronomije - z uporabo fotografije, s katero lahko èlovek zabeleži

ing time in an instant, was realized as long exposures made it possible to preserve on the photographic plate the dim evidence of past light that could not be seen instantaneously, indeed could not be seen by the naked eye at all. Once again, Blumenberg has most suggestively explored its implications.

Astronomical photography raises to a higher power the simultaneity of the non-simultaneous; it now completes the Copernican differetiation of appearance and reality by pursuing the logic of the finite *speed of light*, also, to its conclusion: the technical analysis and display of the heavens, as a section through time, which no longer has anything to do with the equation of intuition and presence. The product of the chemical darkening of a plate by a source of even the faintest light is, in a certain respect, no longer an auxiliary means, but has become the object itself, of which there is no other evidence but just this.

Now paradoxically, with the advances in astronomical photography the privileging of sight was itself subtly called into question, and not only because of a new appreciation of the vastness of the invisible parts of reality. For no sense, not even unaided human sight could verify or falsify what the technological preservation of the light from past events had recorded. Appearance through technological mediation is the only reality we can know, even if we theorize that something lies - or rather at some time in the distant past lay - behind it. With *astronomical hindsight*, the long-standing reliance on visually based intuition - from the Latin *intueri*, to look at or regard, an association still present in the German *Anschauung* - to discern essences is fundamentally challenged. Only conceptually mediated knowledge based on the acknowledgement of sight's inability to present the truth of its objects through intuition follows from Roemer's discovery when it is combined with photographic enhancement; only a knowledge that is filtered through sign systems that are not directly perceptual is thus the lesson to be learned from *the astronomical hindsight* of the telescope. Not surprisingly, when

komaj opazno svetlobo daljnih zvezd, ki jih èloveško oko le ste□ka zazna. S tem je bilo uresnièeno nasprotje mo□nosti hitrih posnetkov z novo tehnologijo - njeno zmo□nostjo Meduze hipoma zamrzniti èas, ki nepretrgoma teèe, saj je dolga ekspozicija omogoèala ohranitev skoraj nevidnih sledi svetlobe iz preteklosti na fotografski plošèi. Te svetlobe v enem samem trenutku ne bi bilo moè zaznati, pravzaprav je sploh ne bi mogli videti s prostim oèesom. Implikacije tega je najbolje izrazil Blumenberg:

"Fotografija v astronomiji krepi simultanost nesimultanega. Zaokro□uje kopernikansko razlikovanje navideznega in resniènosti tako, da sledi logiki konène *svetlobne hitrosti*, tudi do njenega konca: tehniène analize in prikaza neba kot izseka èasa, ki nima nièesar veè opraviti z enaèenjem intuicije in prisotnosti. Produkt kemiène zatemnitve fotografske plošèe s tudi najšibkejšim virom svetlobe ni veè, do doloèene mere, le pomo□no sredstvo, paè pa je postal objekt, za katerega drugih dokazov sploh ni."

A poglejmo še nekaj zanimivega. Z napredkom astronomske fotografije je bilo izpostavljanje vida previdno postavljeno pod vprašaj, toda ne samo zaradi novega vrednotenja širine nevidnih delov resniènosti. Noben èut - tudi prosto oko ne - namreè ni zmo□en potrditi ali zanikati tega, kar je zabele□ila tehnologija - ohranitev svetlobe preteklih dogodkov. Navidezno s tehnološkim posrednikom je edina resniènost, ki jo poznamo, èetudi še tako razpravljamo o tem, kako nekaj je - ali je v preteklosti bilo, oziroma se je skrivalo za to resniènostjo. Z *astronomskim pogledom v preteklost* je dolgotrajno zanašanje na zaznavanje bistva preko vidne intuicije (lat. *intueri*, gledati; še vedno prisotno v nem. *Anschauung*) zelo vprašljivo. Ostane samo konceptualno posredovano znanje, ki temelji na priznanju, da je vid preko intuicije nezmo□en predstaviti resnico o objektih. Prav to znanje pa izvira iz Roemerjevega odkritja v povezavi s fotografijo. *Astronomski pogled v preteklost* skozi teleskop nas torej uèi, da je pomembno znanje, ki je preèišèeno preko znakovnih sistemov, ki niso neposredno zaznavni. Prav niè presenetljivo ni, da so romantiki ob o□ivljanju intuicije (kot nasprotju

the Romantics sought to restore the power of intuition against the alleged fallacies of analytical reasoning, they also longed for the return of what Novalis called *the old sky* of celestial presence through a revival of *moral astronomy*. However, theirs was a losing effort, as the symbolic resonance of the pre-Copernican sky was irretrievably shattered. Blanchot's *disaster* could not be undone.

Moreover, what has been recognized as the indexical nature of all photographic signification - in Peirce's well-known sense of an index as a physical trace of a past event, as opposed to an arbitrary symbol or a mimetic icon - is doubled by the fact that the index left behind on the photographic plate is itself a trace of an event that has happened in the far distant past. Whereas a normal index is once removed from its cause, which may have left non-visual residues as well - I can feel the medium, say snow or mud, in which the fox's tracks are left as well as see it, and perhaps even smell its faint odour as well - a photographic image of stellar events is twice removed from them and without any other corroborative trace.

A melancholic link between photography in general and death - its status as a kind of *thanatography* - has been recognized by a number of observers, most notably Susan Sontag, Roland Barthes and Ren Dubois. The referent of an image functions as *a memento mori*, they claim, because of its inevitable pastness, a reminder that one day we too will no longer be here. Such a connection can only become more explicit when the image is of stellar light from an unimaginably deep past. Barthes, in fact, explicitly notes the link by citing Sontag's claim that "the photograph of the missing being... will touch me like the delayed rays of a star." Photographs of stars may not be as poignantly mournful as those of our parents when they were young, as in Barthes' celebrated example of the Winter Garden shot of his mother at the age of five, but they intensify the sense of temporal disjunction that every photograph must convey. Blanchot's *disaster* is perhaps nowhere as palpable as when we hold in our hands, in the present, a photographic image of a far distant past that we know no longer exists.

zmot analitiènega mišljenja) želeli tudi vrnitev *starega neba* (po Novalisu), torej nebesne navzoènosti, ki bi obudila *moralno astronomijo*. Toda njihov trud je bil zaman. Simbolièni zven predkopernikovskega neba je nepovratno utihnil. Blanchotovi *katastrofi* ni bilo pomoèi.

Še veè, kar opisujejo kot znakovno naravo vsesplošnega pomena fotografije - znak je po Peirceu fizièna sled preteklega dogodka v nasprotju s poljubnim simbolom ali mimetièno ikono - je podkrepljeno z dejstvom, da je znak, ki ostane na fotografski plošèi, tudi sled dogodka iz daljne preteklosti. Medtem ko obièajni znaki navadno enkrat izgubijo sled svojega nastanka, ki pa je kljub temu morda le zapustil nevidne sledi - še vedno lahko otipam medij, na primer sneg ali blato, v katerem so vidne lisièje sledi, si ga ogledam in celo zaznam izginjajoè vonj - fotografska podoba zvezdnih dogodkov izgubi sled dvakratno, ne da bi vsebovala kakršnekoli druge sledi.

Melanholièno povezavo med fotografijo kot tako in smrtjo - s statusom nekakšne *thanatografije* - so prepoznali mnogi opazovalci, morda najbolj Susan Sontag, Roland Barthes in Ren Dubois. Referent neke podobe deluje kot *memento mori*, vsaj tako trdijo naši opazovalci, zaradi svoje neizogibne preteklosti in nas opominja, da tudi nas nekoè ne bo veè tu. Takšna povezava postane še bolj oèitna, ko gledamo podobo zvezdne svetlobe iz nepredstavljivo daljne preteklosti. Barthes to opazi in ponazori s citatom S. Sontag, ki zatrjuje, da jo "fotografija preminule osebe gane kot zakasnjeni zvezdni žarki." Fotografije zvezd morda niso tako pretresljivo ganljive kot tiste naših staršev iz mladih let tako kot na primer znana fotografija Barthesove še petletne matere v zimskem vrtu, a vseeno vzbudijo obèutek èasovnega zamika, ki ga mora posredovati vsaka fotografija. Blanchotova *katastrofa* ni nikjer tako otipljiva kot na fotografiji daljne preteklosti, ki jo držimo v rokah in za katero vemo, da ne obstaja veè.

Do teh ugotovitev je - kot je pred kratkim pokazal Eduardo Cadava - z natanènim prouèevanjem prišel Walter Benjamin. Benjaminovo sugestivno razglabljanje o mimetièni podobnosti in auratièni oddaljenosti

This was a lesson, as Eduardo Cadava has recently shown, that was learned with special thoroughness by Walter Benjamin, whose suggestive ruminations on mimetic similarity and auratic distance often invoked the example of astronomical constellations. In a world no longer able to believe in sympathetic magic and astrological correspondences, the heavens had become a vast cemetery of dead light. Benjamin believed, in Cadava's words, that "like the photograph that presents what is no longer there, starlight names the trace of a celestial body that has long since vanished. The star is always a kind of ruin. That its light is never identical to itself, is never revealed as such, means that it is always inhabited by a certain distance or darkness." Although Benjamin may have hoped against hope for a messianic redemption that would restore meaning to a forlorn world, he registered with special intensity the mournful implications of the cosmic *Trauerspiel*.

However, even if the emotion that ensues is not so morose, we must inevitably be struck by the conundrum of a visual presence that cannot be complete and self-contained. Taking seriously that lesson allows us to emend a bit Jonathan Crary's influential argument about the transformation of the protocols and techniques of observation in the l9th century. Crary's claim is that only with advances in the physiological understanding of the eye, which involved such phenomena as *afterimages* (the fusion of discrete images into a simulacrum of duration) and *stereoscopic vision* (the transformation of two nearly identical flat images into the experience of seeing three dimensions), was the time-honoured model of disembodied, atemporal sight based on *the camera obscura* effectively challenged. "The virtual instantaneity of optical transmission (whether intromission or extramission)," Crary writes, was an unquestioned foundation of classical optics and theories of perception from Aristotle to Locke. Moreover, the simultaneity of *the camera obscura* image with its exterior object was never questioned. However, as observation is increasingly tied to the body in the early 19th century, temporality and vision become inseparable. The shifting processes of

nas pogosto spomni na astronomske konstelacije. V svetu, ki ne verjame veè v dobro magijo in astrološko usklajenost, so nebesa postala ogromno pokopališèe mrtve svetlobe. Benjamin je verjel, kot pravi Cadava, da "kot fotografije, ki upodabljajo to, kar ne obstaja veè, tudi zvezdna svetloba oznaèi sled nebesnega telesa, ki je le davno izginilo. Zvezda je tako vedno tudi neke vrste ruševina. Njena svetloba ni nikoli enaka njej sami, dejansko se nikoli ne razkrije, kar pomeni, da jo naseljujeta oddaljenost in tema." Èeprav Benjamin morda ni upal v mesijansko odrešitev zapušèenega sveta, ki naj bi mu spet povrnila smisel, je vseeno natanèno zabeležil obžalovanja vredne implikacije tega, kar lahko imenujemo kozmièni *Trauerspiel*.

Èetudi obèutki, ki temu sledijo, niso tako temaèni, nas prav gotovo preseneti uganka vizualne prisotnosti, ki ne more biti celostna in popolnoma neodvisna. Pri tem moramo jemati resno to, da nam ugotovitev dopušèa vsaj minimalno izboljšanje vplivne trditve Jonathana Craryja o spremembi naèina in tehnik opazovanja v 19. stoletju. Crary namreè trdi, da je le napredek v fiziološkem razumevanju oèesa, ki je vključeval pojave, kot so zlitje nepovezanih podob v simulaker trajanja (*afterimages*) in prehajanje dveh skoraj enakih ploskovnih podob v izkušnjo videnja treh dimenzij (*stereoskopski vid*), in je predstavljal èastitljiv model loèitve od telesa, lahko ovrgel staro atemporalno in breztelesno pojmovanje vida, ki je temeljilo še na *cameri obscuri*. "Virtualna trenutnost optiène transmisije (intromisije ali ekstramisije)," pravi Crary, "je bila nesporna osnova klasiène optike in teorij zaznavanja od Aristotela do Lockea. Simultanost podobe *camere obscure* z njenim zunanjim objektom tako ni bila nikoli pod vprašajem. Ko pa je v 19. stoletju opazovanje postalo vse bolj povezano s telesom, sta temporalnost in vid postala neloèljiva. Spremenljivi procesi posameznikove subjektivnosti, doživeti v èasu, postanejo soznaèni z gledanjem samim in tako iznièijo kartezijanski ideal opazovalca, popolnoma usmerjenega na objekt."

Craryjeva premisa, da dominantna paradigma vida (tu lahko govorimo o *kartezijanskem perspektivizmu*), ki temelji na *cameri obscuri*, izvze-

one's own subjectivity experienced in time become synonymous with an act of seeing, dissolving the Cartesian ideal of an observer completely focused on an object.

Crary's premise that the dominant paradigm of vision based on *the camera obscura* - what can be called *Cartesian perspectivalism* - privileged the disembodied, monocular eye has been recently challenged for underplaying the extent to which the body was already present in certain 17th-century optical theories. Nonetheless, his central point that 19th-century physiology gave a much firmer empirical basis to the recorporealization and thus temporalization of sight than ever before seems to me still intact. At least it does from the point of view of the subject of vision, the viewer, whose eye became firmly situated in a living, moving body rather than hovering above it in an ideal realm of pure opticality.

But what appreciating the importance of Roemer's discovery of *the speed of light* helps us to understand is that a similar temporalization had already occurred on the level of the object of vision, at least when it concerned *astronomical hindsight*. That is, *the camera obscura* model of synchronic presence could not be easily applied when the light coming through its little hole was from a distant star. Here *afterimages*, we might say, are not produced by lingering sensations on the retina creating a simulacrum of movement, but rather by the delays in the light from the object itself.

It must, of course, be conceded that this lesson took a considerable amount of time before it was widely appreciated; we might even say that it was appropriately not an instantaneous transmission. Crary's physiological technologists of observation thus still deserve the primary credit for the abandonment of *the camera obscura* model of atemporal presence. It may not, in fact, have been until Nietzsche, according to Blumenberg, that the deduction was drawn from the fact of the finite *speed of light*, and the non-simultaneity of appearing objects with the observer's present, which follows from that, the conse-

ma monokularno, od telesa loèeno oko. Pred nedavnim so ji oèitali, da podcenjuje prisotnost telesa v nekaterih optiènih teorijah iz 17. stoletja. Kljub temu je njegova glavna teza, da je fiziologija 19. stoletja vidu dala veliko moènejšo telesno in tako tudi temporalno empirièno osnovo, še vedno nedotakljiva. Taka je vsaj s stališèa subjekta vida, torej gledalca, èigar oko je takrat postalo trdno zasidrano v liveèem, premikajoèem se telesu in ni veè le lebdelo nad telesom v nekakšnem popolnem obmoèju èiste optike.

Pomembnost Roemerjevega odkritja *svetlobne hitrosti* poudarja dejstvo, da nam njegovo odkritje omogoèa razumeti tudi to, kako se je podobna temporalnost le pojavila tudi na nivoju objekta vida, vsaj ko govorimo o *astronomskem pogledu v preteklost*. To pomeni, da modela sinhrone prisotnosti pri *cameri obscuri* verjetno ne bi mogli zlahka uporabiti, èe bi bila svetloba, ki prihaja skozi njeno luknjico, svetloba daljne zvezde. Tako lahko trdimo, da *afterimages* tukaj niso produkt dolgotrajnih vtisov na mrelnici, ki tvorijo simulaker gibanja, paè pa zakasnitve v svetlobi, ki prihaja od objekta samega.

Seveda je treba priznati, da je bilo potrebno veliko èasa, preden so te ugotovitve postale splošno sprejete. Lahko bi celo rekli, da ni prišlo do trenutne transmisije. Craryjeve fiziološke tehnologije opazovanja imajo tako še vedno velike zasluge za to, da je bil model atemporalne prisotnosti *camere obscure* opušèen. Blumenberg pa zatrjuje, da je verjetno Nietzsche pomenil prelomnico, ko so prišli do sklepa, da je zaradi konène hitrosti svetlobe in nesimultanosti pojavljanja objektov z opazovalèevo sedanjostjo, ki iz tega sledi, sedanjost nepomembna. Prisotnost nam ne omogoèa dojeti nujnosti tega, kar je v njej, ker je le nakljuèen izsek iz realnosti. Nerednost pojavljanja v prostoru se izkale za projekcijo usodnih zakasnitev na ploskvi tega, kar lahko ta hip vidimo. Gre za paradigmo èasovne popaèenosti realnosti, ki se ne pojavi le v naravi paè pa - na alost - tudi v zgodovini.

Nepomembnost sedanjosti kot posledica *svetlobne hitrosti* je bila morda bel no omenjena tudi v nekaterih najznamenitejših zapisih o

quence of the indifference of the present. Presence cannot enable us to apprehend the necessity of what is given in it, because it is only an accidental section through reality. The irregularity of appearances in space turn out to be a projection of the fateful delays into the plane of what is just now visible; it is a paradigm of the distortion of reality by time, not only, and not most painfully, in nature but also in history.

The indifference of the present as a consequence of *the speed of light* was perhaps also tacitly implied by one of the most celebrated evocations of the telescope in modern thought, Freud's comparison in The Interpretation of Dreams of psychical locality in the unconscious with an optical apparatus. Such a compound instrument, he noted, produces images "at ideal points, regions in which no tangible component of the apparatus is situated." The relevance to our argument about *astronomical hindsight* comes from Freud's further claim that we could just as easily conceptualise the relation between the lenses in that apparatus in temporal as in spatial terms. In so doing, we can then understand that the image produced at the ideal point is not fully present, but is rather the place of a memory trace, an unlocalizable compound that connects past with present.

Freud's metaphor has attracted considerable attention; at least since Jacques Derrida foregrounded its implications in his 1966 essay Freud and the Scene of Writing. To reduce a complicated argument to its most fundamental lineaments, Derrida suggested that Freud's *optical machine* metaphor would be transformed in his later work into a graphic one based on a *mystical writing pad* on which the traces of previous inscriptions could be discerned in the wax beneath a transparent sheet of celluloid. The writing pad produced a kind of spatialized time, which denied the possibility of any full symbolic presence. It instantiated instead the temporal spacing of difference without reconciliation.

Writing in response to Derrida, Timothy J. Reiss has argued in The Discourse of Modernism that it is unnecessary to posit a transition

teleskopu v moderni misli, v Freudovi primerjavi v delu Interpretacija sanj, in sicer o psihièni lokalnosti v nezavednem z optièno napravo. Po njegovem ta zapletena naprava ustvarja podobe "v idealnih toèkah, na podroèjih, kjer se ne nahaja noben oprijemljiv del same naprave." Stièno toèko z našimi trditvami o *astronomskem pogledu v preteklost* lahko najdemo tudi v Freudovi naslednji trditvi, da smo sposobni konceptualizirati odnos med leèami v tej napravi tako v èasovnem kot v prostorskem smislu. Tako lahko razumemo, da podoba, ki je ustvarjena v idealni toèki, ni popolnoma prisotna, ampak je le prostor spominske sledi, neumestljivega sestavnega dela, ki povezuje preteklost s sedanjostjo.

Freudova prispodoba je vzbudila precejšnjo pozornost, še posebej potem, ko je Jacques Derrida pripravil temelje zanjo v svojem eseju Freud in prizorišèe pisanja (*Freud and the Scene of Writing*). Z namenom, da bi zapleteno trditev oklestil do najosnovnejših potez, je Derrida namignil, da se je Freudova prispodoba *optiènega stroja* v njegovih kasnejših delih spremenila v grafièno, ki je temeljila na *mistiènem pisalnem bloku*, na katerem je bilo mogoèe pod prozornim celuloidnim papirjem opaziti vošèene sledi prejšnjih zapisov. Pisalni blok je ustvaril nekakšen prostorsko zaznamovan èas, ki je zanikal obstoj kakršnekoli popolne simbolne prisotnosti. Namesto tega je brezkompromisno zagovarjal èasovni razmik razlik.

Kot odgovor na to, kar je zapisal Derrida, je Timothy J. Reiss v delu Diskurz modernizma (*The Discourse of Modernism*) zatrjeval, da ni potrebno postaviti prehoda od zaznavnega k lingvistièneme ali grafološkemu modelu nezavednega, od teleskopa k mistièneme pisalnemu bloku, èe želimo priti do sledi, ki ima v sebi razcepljeno temporalnost. Prehod je torej nepotreben, saj je v delovanju naprave, ki ustvarja neoprijemljivo, takoj prisotno podobo in spominsko sled preteklosti, lahko preko diskurzivnega znakovnega sistema vidimo intuitivno zaznavno neposrednost. Teleskop, èe mi Derrida dovoli to trditev, je na nek naèin le pisalni stroj, v katerem sledi preteklosti kot duhovi preganjajo navidezno samozadostno sedanjost. Zdi se mi, da to

from a perceptual to a linguistic or graphological model of the unconscious, from the telescope to *the mystical writing pad*, to arrive at the logic of the trace with its internally split temporality. For already in the workings of the apparatus producing an intangible image at once present and a memory trace of the past can we see the mediation of intuitive perceptual immediacy by a discursive sign system. The telescope, pace Derrida, is already a kind of writing machine in which the trace of the past continues to haunt the apparently self-contained present. This point, it seems to me, becomes even stronger, if we separate out, as Freud did not, the telescope from other imaging apparatuses, such as the microscope and the camera, and emphasize its role in producing what we have been calling *astronomical hindsight.* For here, the temporal spacing produced by the delay between the emission and reception of starlight is even more pronounced. The images collected by the mirrors of the reflecting telescope and then preserved on photographic plates are like memory traces without any single temporal location.

For an answer to these questions let us turn to the figure who had done more than any other to explore and - at least for some commentators - legitimate the post-modern world of simulacral self-referentiality, the French theorist Jean Baudrillard. In one of his key texts, Fatal Strategies of 1983, Baudrillard introduces precisely *the speed of light* as a metaphor to explain what he describes as the progressive attenuation of meaning in the contemporary world. "Somewhere a gravitational effect causes the light of event(s), the light that transports meaning beyond the event itself, the carrier of messages, to slow down to a halt," he writes, "like the light of politics and history that we now so weakly perceive, or the light of celestial bodies we now only receive as faint simulacra." Until recently, he continues, the sense of reality in normal terrestrial experience has been based on the very high velocity of light producing a sense of contemporaneity, in which object and its perception are coordinated. Now everyday life is beginning to resemble the experience of stargazing, in which information paradoxically seems to travel much slower

postane še izraziteje, èe - v nasprotju s Freudom - izloèimo teleskop od drugih vizualnih naprav, kot sta mikroskop in fotoaparat, in poudarimo njegovo vlogo v stvaritvi, ki smo jo ves èas imenovali *astronomski pogled v preteklost*. Pri teleskopu je namreè èasovni razmik, ki je rezultat zakasnitve med emisijo in sprejemom zvezdne svetlobe, še izrazitejši. Podobe, ki jih ustvarijo ogledala teleskopa in so ohranjene na fotografskih plošèah, so kot spominske sledi brez kakršnekoli èasovne umestitve.

Francoski teoretik Jean Baudrillard je veè kot vsi drugi raziskoval in - kot trdijo vsaj nekateri razlagalci - dokazoval legitimnost samoreferenènosti simulakra postmodernega sveta. Baudrillard v besedilu Usodne strategije (*Fatal Strategies*) iz leta 1983 prav *svetlobno hitrost* predstavi kot prispodobo za izginjanje pomena v modernem svetu. "Nekje lahko gravitacijski efekt povzroèi, da se svetloba dogodka(-ov) - svetloba, ki prenaša pomen onstran dogodka samega in je nosilec sporoèil - upoèasni in ustavi," pravi Baudrillard, "Kot svetloba politike in zgodovine, ki jo tako šibko zaznavamo, ali svetloba nebesnih teles, ki jo vidimo le kot nejasen simulaker." Pravi tudi, da je bil do nedavnega obèutek resniènosti v obièajnem zemeljskem doživljaju zasnovan na zelo visoki hitrosti svetlobe, ki je dajala obèutek soèasnosti, v kateri sta objekt in zaznava usklajena. Zdaj pa vsakdanje življenje postaja podobno opazovanju zvezd, kjer se informacije paradoksalno gibljejo poèasneje od vira, ta pa postaja vse bolj nejasen in manj zanesljiv. Podobno kot Blanchot s svojo *katastrofo* nas tudi Baudrillard svari pred posledicami te transformacije: "Zavedati se moramo katastrofe, ki nas èaka v upoèasnitvi svetlobe: poèasnejša kot je svetloba, manj je zapusti svoj vir. Stvari in dogodki tako nehajo podajati svoj pomen. Upoèasni se njihova emanacija, da bi se zmanjšalo, kar je bilo prej refraktirano in posrkano v èrno luknjo."

Èeprav gravitacijska privlaènost èrnih lukenj pomeni, da objekti pomena ne izgubijo, se Baudrillard s tem zaključkom ne ukvarja in raje govori o možnosti, da živimo v svetu poèasi premikajoèih se podob, ki

from a source that grows dimmer and less certain. Echoing the rhetoric of *disaster* we have already encountered in Blanchot, he exhorts us to face the consequences of this transformation: "We must be able to grasp the catastrophe that awaits us in the slowing of light: the slower light becomes, the less it escapes its source; thus things and events tend not to release their meaning, tend to slow down their emanation, to harness that which was previously refracted in order to absorb it in a black hole."

Although the gravitational pull of black holes suggests absolutely no meaning escapes from objects, Baudrillard backs away a bit from this conclusion, and talks instead of the possibility that we live in a world of slow-motion images that take a long time to reach us. "We would thus need to generalize the example of the light that reaches from stars long since extinct - their images taking light-years to reach us. If light were infinitely slower, a host of things, closer to home, would already have been subjected to the fate of these stars: we would see them, they would be there, yet already no longer there. Would this not also be the case for a reality in which the image of a thing still appears, but is no longer there?"

Baudrillard's grasp of 20th-century physics may be faulty, as he misses the implication of Einstein's Special Theory of Relativity, which has since been experimentally confirmed. Light itself, the theory argues, is an absolute constant that cannot be accelerated or decelerated, although paradoxically space and time can be understood as relative. Since light, unlike other waves such as sound, is able to travel in a total vacuum, unaffected by the medium through which it moves - such as *the ether* whose existence modern physics has disproved - and the speed and directional movement of its observer do not affect its velocity, it is, strictly speaking, wrong to speak of the "slowing down" of light. Distances become smaller and time longer for moving bodies as they approach *the speed of light*, but that speed remains the same. The gravitation of Black Holes only deflects light; it does not affect its velocity. As Sidney Perkowitz puts it, "the universe is

potrebujejo veliko èasa, da pridejo do nas. "Potemtakem bi morali posplošiti primer svetlobe, ki prihaja le od davno izginulih zvezd, saj njihova podoba do nas potrebuje svetlobna leta. Èe bi bila svetloba neskonèno poèasnejša, bi bil cel kup stvari, ki so nam bliže, le pod vplivom usode teh zvezd. Videli bi jih, bile bi tam, a hkrati jih tam tudi ne bi bilo veè. Ali bi bilo tako tudi z realnostjo, v kateri se podoba neke stvari še vedno prikaže, a je ni veè tam?"

Baudrillardovo dojemanje fizike 20. stoletja je morda napaèno, saj ni upošteval Einsteinove posebne relativnostne teorije, ki so jo do takrat že dokazali tudi s poskusi. Svetloba sama, pravi ta teorija, je absolutna konstanta, ki je ne moremo pospešiti ali upoèasniti, èeprav je zanimivo to, da lahko prostor in èas razumemo kot relativna. Kajti svetloba, v nasprotju z drugimi valovanji, kot je na primer zvok, lahko potuje v popolnem vakuumu. Nanjo ne vpliva noben medij, tudi na primer *eter* - ki ga moderna fizika sicer zavraèa - ne. Na svetlobno hitrost prav tako ne vplivata hitrost ali usmerjeno gibanje opazovalca. Torej o "upoèasnjevanju" svetlobe nikakor ne moremo govoriti. Za gibajoèa telesa, ki se približujejo svetlobni hitrosti, se razdalje manjšajo in èas daljša, toda hitrost ostane nespremenjena. Gravitacija èrnih lukenj le odbija svetlobo, ne vpliva pa na njeno hitrost. Sidney Perkowitz to razloži takole: "Vesolje je narejeno tako, da svetloba vedno potuje svojo pot niè, za nas pa je ura ustav-ljena in njena hitrost toèno doloèena. Taki zdravorazumski zaključki morda izgledajo kot plod podivjane domišljije, toda to je zato, ker je svetloba dejansko drugaèna kot karkoli drugega, kar poznamo."

Kljub vsej svoji nenatanènosti ima Baudrillardova metaforièna obuditev uèinkov Roemerjevega odkritja, da svetloba ni hipna v smislu èasa, ki ga podoba potrebuje za svojo pot, tudi svoje pouène implikacije. Neprièakovano namreè izpodbija popolno enaèenje virtualne resniènosti z nereferenènim sistemom znakov, ki so popolnoma neodvisni od katerekoli prejšnje realnosti, ki jih je morda povzroèila ali spodbudila. Tovrstno enaèenje se v njegovem delu sicer pojavi kar nekajkrat. S primerjavo sveta virtualne resniènosti z zakasnelo sve-

made so that light always travels its own distance of zero, while to us its clock is stopped and its speed is absolutely fixed. These sober conclusions read as if they come out of some fevered fantasy. Light, indeed, is different from anything else we know."

But for all its imprecision, Baudrillard's metaphoric invocation of the effects of Roemer's discovery that light is not instantaneous in terms of the time it takes for images to travel is not without its instructive implications. For it unexpectedly undermines the equation of virtual reality entirely with a non-referential system of signs totally indifferent to any prior reality that might have caused or motivated them, an equation that admittedly is operative at other moments in his work. That is, by comparing the world of virtual reality with the delayed light from distant stars, Baudrillard alerts us to the attenuated indexical trace of an objective real that haunts the apparently self-referential world of pure simulacra. Like the memory traces in Freud's *optical apparatus* version of the unconscious, such images are not made entirely out of whole cloth existing only in an atemporal cyberspace, but are parasitic on the prior experiences that make them meaningful to us today. The temporality of virtuality is thus not pure simultaneity or contemporaneity, but the disjointed time that disrupts any illusion of self-presence.

As N. Katherine Hayles has pointed out in a recent discussion of Virtual Bodies and Flickering Signifiers, "the new technologies of virtual reality illustrate the kind of phenomena that foreground pattern and randomness and make presence and absence seem irrelevant... Questions about presence and absence do not yield much leverage in this situation, for the puppet (on a computer screen duplicating the movements of the user) both is and is not present, just as the user both is and is not inside the screen." Moreover, the new information technologies produce signifiers that do not float entirely free, but rather *flicker*, disrupting the absolute alternative between presence and absence. They are thus ultimately dependent on the material embodiment that they seem to have left behind, especially those

tlobo daljnih zvezd nas Baudrillard opozori na oslabljeno znakovno sled objektivnega realnega, ki preganja navidezno samoreferenèni svet èistega simulakra. Kot spominske sledi v Freudovi razlièici optiène naprave nezavednega tudi te podobe niso narejene samo iz enega kosa blaga, ki bi obstajal le v atemporalnem kiberprostoru, ampak se zajedajo v prejšnje izkušnje in se nam zato danes zdijo smiselne. Temporalnost virtualnega tako ni èista simultanost ali soèasnost, ampak nepovezan èas, ki razbije kakršnokoli iluzijo samoprisotnosti.

N. Katherine Hayles je v diskusiji Virtualna telesa in migotajoèi oznaèevalci (*Virtual Bodies and Flickering Signifiers*) izpostavila, da "nove tehnologije virtualne resniènosti ponazarjajo pojave, ki izpostavljajo vzorce in nakljuènost ter uèinkujejo tako, da se zdita prisotnost in odsotnost nepomembni ... Vprašanja o prisotnosti in odsotnosti so v teh okolišèinah nebistvena, saj lutka (na raèunalniškem ekranu, ki oponaša gibe uporabnika) je in ni prisotna, tako kot tudi uporabnik je in ni prisoten na ekranu." Še veè, informacijske tehnologije ustvarjajo oznaèevalce, ki ne plavajo èisto sami, paè pa *migotajo* in tako razbijajo absolutno izbiro med prisotnostjo in odsotnostjo. Tako so na koncu odvisni od materialnega utelešenja, za katerega se zdi, da so ga pustili za seboj. Še najbolj so odvisni tisti, ki so interaktivni s èloveškimi èutili in njihovim okoljem. Lahko bi rekli, da spominjajo na migotanje informacij, ki prihajajo od svetlikajoèih se zvezd, èeprav Haylesova te povezave ne omenja.

Še en naèin, s katerim lahko razbijemo navidezno samozadostnost virtualnega vesolja, vsaj tako dodaja Mark Poster, obstaja, in sicer skozi transformacijsko interakcijo subjektov, ki ustvarijo svet, v katerega vstopijo, ki si nadenejo rokavici in naglavno opremo. Rezultat je veè kot pasivno sprejemanje sveta èiste simulacije, saj nas vrže iz sedanjosti v prihodnost. Tako ustreza definiciji virtualnosti *per se* (beseda izhaja iz lat. *virtus* in pomeni silo, moè), ki jo je podal francoski medijski teoretik Pierre Levy v delu Kaj je to virtualnost? (*Qu'est-ce que le virtuel?*), v katerem virtualnosti ni predstavil kot nasprotje

that interact with the human sensorium and its environment. They are, we might say, reminiscent of those other flickerings of information that come to us from the twinkling of the stars, even if Hayles herself does not make the connection.

Another way in which the apparent self-sufficiency of the virtual universe may be disrupted, Mark Poster has added, is through the transformational interaction of subjects who construct the world they enter when they put on the glove and headset. The result is thus more than the passive acceptance of a world of pure simulation; it plunges us from the present into the future. As such, it accords with the definition of virtuality *per se* - derived from the Latin *virtus*, the word for force or power - provided by the French media theorist Pierre Levy in his recent *Qu'est-ce que le virtuel?* where it is opposed not to the real or the material, but to the actual. Virtuality here means something like an Aristotelian final cause, a potentiality that "displaces the centre of gravity of the object considered," which is neither a pure presence nor a simulacral phantasm.

The alternative way in which the alleged self-sufficiency of virtual reality is called into question, suggested by the analysis of this paper - and the two are not mutually exclusive - is through the memory traces of the reality that haunts virtual reality from the start, inadvertently betrayed by Baudrillard's metaphor of sidereal light that reaches us after a long delay. Here, as in the case of Crary's argument about the importance of ocular physiology in dismantling *the camera obscura* paradigm, the story of subjective construction must be balanced by an acknowledgment of the disturbing effects that come from the object. Or more precisely, when the lessons of *astronomical hindsight* are applied broadly, we are in an uncanny world of what Derrida has dubbed *hauntological* rather than *ontological* reality, a world in which temporal delay and the indexical trace of the past prevents the present - virtual or not - from assuming the mantle of synchronic self-sufficiency.

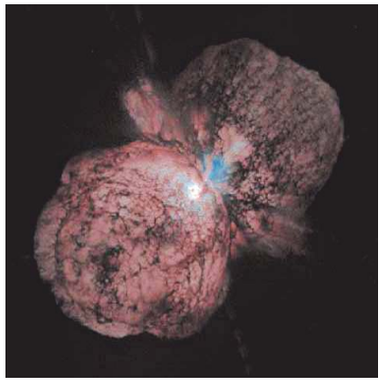
realnemu ali materialnemu, paè pa kot nasprotje dejanskemu. Virtualnost ima tako podoben pomen kot aristotelski konèni vzrok, potencialnost, ki "premakne središèe gravitacije objekta, ki ga obravnavamo", in ki ni ne èista prisotnost ne simulakerska fantazma.

Drugi vidik, s katerim se tako imenovana samozadostnost virtualne resnièlnosti v podrobni analizi tega èlanka postavlja pod vprašaj - oba vidika se ne izključujeta - se uresnièuje s pomoèjo spominskih sledi realnosti, ki preganja virtualno resnièlnost le od samega zaèetka, in se mu je Baudrillard nenamerno izneveril s svojo prispodobo o zvezdni svetlobi, ki nas doseže z veliko zamudo. Tudi tukaj - kot pri Craryjevem argumentu o pomembnosti okularne fiziologije pri rušenju paradigme *camere obscure* - se mora zgodba o subjektivni konstrukciji uravnotežiti s priznanjem, da od objekta prihajajo moteèi vplivi. Natanèneje povedano, èe ugotovitve *astronomskega pogleda v preteklost* uporabimo širše, se znajdemo v nezanesljivem svetu, ki ga je Derrida poimenoval *pregontološka* (*hauntological* - angl. *haunt* pomeni preganjati, op.p.) in ne *ontološka* realnost. Gre za svet, kjer èasovna zakasnitev in znakovne sledi preteklosti onemogoèajo, da bi si sedanjost - virtualna ali pa tudi ne - nadela ogrinjalo sinhrone samozadostnosti.

Ali je rezultat melanholièni *memento mori*, kot smo to trdili v primeru fotografije, ali *katastrofa*, ki jo je Blanchot opisal kot izgon iz domene svetega pomena - tega ne vemo zagotovo. Ali se sploh kaže predajati obèutkom èudežnosti ob preživetju na videz mrtve preteklosti? In ali je èudež virtualnih ostankov že dolgo mrtvih zvezd povezan z virtualnostjo, ki nam lahko, vsaj tako pravita Poster in Levy, omogoèi dostop do potencialne prihodnosti? Konec koncev, ali ni svetlobi, ki se odbija od nas in odseva naše podobe do katerihkoli oèi, ki so odprte in jih lahko sprejemajo, nekako usojeno, da bo potovala - èeprav v narašèajoèe razpršeni obliki - za vekomaj in tako naredila našo sedanjost preteklost neštetih prihodnosti, ki še prihajajo?

Whether or not the result is a melancholic *memento mori*, as has been claimed in the case of photography, or *a disaster* in Blanchot's sense of being ousted from a realm of sacred meaning, is, however, uncertain. For might it be just as plausible to experience a feeling of wonder at the survival of the seemingly dead past? In addition, might that wonder at the virtual residues of the long dead stars be connected to the virtuality that, according to Poster and Levy, opens us as well to a potential future? For after all, is not the light reflecting off us, radiating our images to any eyes open to receive them, somehow destined, even if in increasingly diffused form, to travel forever, making our present the past of innumerable futures still to come?

Martin Jay (1944, New York) is a theory writer on humanities issues. In the Balkans, he's known by his books, The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research, 1923-50, translated in Serbo-Croatian and Adorno translated in Slovene. His latest edited volume was Vision in Context: Historical and Contemporary Perspectives on Sight (with Teresa Brennan), published at New York's Routledge in 1996. His current research concerns a discourse on experience in 20th-century European and American theory. As a professor of history and chairman of the History Department at Berkeley University in California, USA, his interests regard European intellectual history, visual culture and critical theory. Among other awards, the most recent was the American Academy of Arts and Science in 1996. For details see: www.history.berkeley.edu/faculty/Jay.



The star Eta Carinae may be about to explode. Maybe tomorrow... maybe a million years from now./
Zvezdo Eta Carinae lahko vsak èas raznese. Morda jutri... morda èez milijon let.

Martin Jay (1944, New York) je teoretièni pisec na podroèju humanistike. V balkanskem kulturnem prostoru je znan po dveh knjigah: Dijalektièka imaginacija: Povijest frankfurtske škole i instituta za socijalno istraživanje 1923-50, Sarajevo-Zagreb in Adorno, Ljubljana. Njegovo zadnje uredniško delo je nastalo skupaj s Tereso Brennan leta 1996, Vision in Context: Historical and Contemporary Perspectives on Sight, izšlo je pri njujorški založbi Routledge. Trenutno raziskuje diskurs izkušnje v evropski in ameriški teoriji 20. stoletja. Kot profesor zgodovine in predstojnik oddelka za zgodovino na Berkleyski univerzi v Kaliforniji, v ZDA poučuje evropsko intelektualno zgodovino, vizualno kulturo in kritiško teorijo. Njegova zadnja nagrada, med številnimi drugimi, je bila nagrada, ki jo podeljuje Ameriška akademija za umetnosti in znanost leta 1996. Podrobnosti na: www.history.berkeley.edu/faculty/Jay.

THE CONCEPT OF LEVITATION IN OUTER SPACE - FROM NOORDUNG TO IVADINOV

Aleksandra Kostiæ

Each person knows what levitation presents. Dreams and fairy tales from the childhood, like Mary Poppins or Peter Pan, continue into science fiction stories.

A scene from Mary Poppins: the laughing-gas

In physics, the quantity of matter in a body is measured by its inertia. Mass determines the acceleration produced in a body by a given force acting on it, the acceleration being inversely proportional to the mass of the body. The mass also determines the force exerted on a body by gravity on Earth. Einstein proved that the force of gravity and acceleration are in fact the same. If the force of acceleration neutralizes the force of gravity, bodies tend to change motion: they float in the air, or they levitate. The phenomenon, which relates to the body condition, is called levitation; from the perspective of physics, it is nothing but zero gravity.

Under the conditions on the planet Earth it is possible to establish levitation with the help of electromagnetic lines of force for as long as electricity is supplied. However, zero gravity lasts only a few moments during the free-fall, the longest period being during parachute jumps and ski jumps. Similar incidents occur with elevators and airplane take-offs. During the parabolic flight, the airplane lifts up fast in falls that are in a multiple parabola, so that it reaches the state of zero gravity.

KONCEPT LEBDENJA V VESOLJU - OD NOORDUNGA DO IVADINOVA

Aleksandra Kostiæ

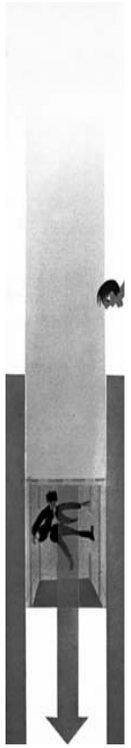
Vsak èlovek ve, kaj je lebdenje. Sanje in pravljice v otroštvu, kot so Mary Poppins ali Peter Pan, se nadaljujejo v znanstvenofantastiène zgodbe.

Prizor iz Mary Poppins: smejalni plin

Fizikalna definicija teèe je sila, s katero privlaèi Zemlja dano telo, ki je produkt mase telesa in teènega pospeška. To je gravitacija, s katero deluje Zemlja na telesa na svoji površini. Einstein je dokazal, da sta teènostna in pospeševalna sila v resnici ena in ista stvar. Èe teènostno silo iznièi pospeševalna sila, se prièneno telesa drugaèe gibati: plavajo po zraku oziroma lebdijo. Pojav, ki se navezuje na stanje telesa, imenujemo lebdenje ali levitacija, gledano s stališèa fizike gre za brezteènostno stanje ali gravitacijo niè.

V zemeljskih pogojih je moèno vzpostaviti lebdenje z elektromagnetskimi silnicami toliko èasa, kolikor dolgo dovajamo elektriko. Pri prostem padu pa tudi med skokom traja brezteènost le nekaj trenutkov, najdaljše je pri odskokih s padalom in smuèarskih skokih. Podobno je v dvigalih ali ob letalskih vzletih. Na paraboliènem poletu se letalo med voènjo hitro dviguje in pada v veèkratni paraboli in tako doseèe stanje gravitacije niè.

In a flying rocket, the force of acceleration, which works upwards, causes the same feeling as an increase in the force of gravity working downwards. In the free-fall elevator, the force of gravity seems to have disappeared.

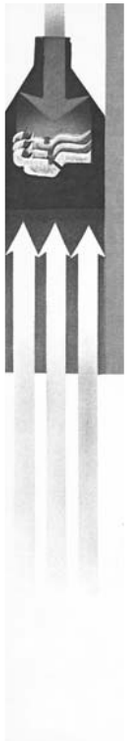


Forces of acceleration intensify with increased distance from Earth. If the Earth's magnetism were escaped, weightlessness and airlessness would be accomplished, which is presented by the physical.

In his book, The Problem of Space Travel from 1929, Herman Potoènik Noordung described how to reach the edge of the Earth, the plan and functioning of geostationary architecture, the fundamental problems of levitation and a trip among the planets, applying a very lucid and scientific language.

Herman Potoènik Noordung influenced the scientist and writer Arthur C. Clarke, who further developed the idea in 1945 with the concept of a geostationary environment. He discovered that three space ships, located at equal distances in a synchronic orbit, would cover the whole planet by using radio and television broadcasting. In 1959, the Sputnik era, experiments began. Enthusiasm for the concept of space reached its peak at this time.

In 1963 at the Hughes Aircraft Company, the Syncom 1 was launched into orbit; this represented the first accomplishment of Potoènik's idea about a geostationary satellite for communication purposes. After the launch, it vanished without any trace. Today, there are more than 180 active successors orbiting the equator.



V dvigajoèi se raketi povzroèa navzgor usmerjeni pospešek rakete enak obèutek kot poveèanje navzdol usmerjene teènostne sile. V prosto padajoèem dvigalu se zdi, kot da ni teènostne sile.

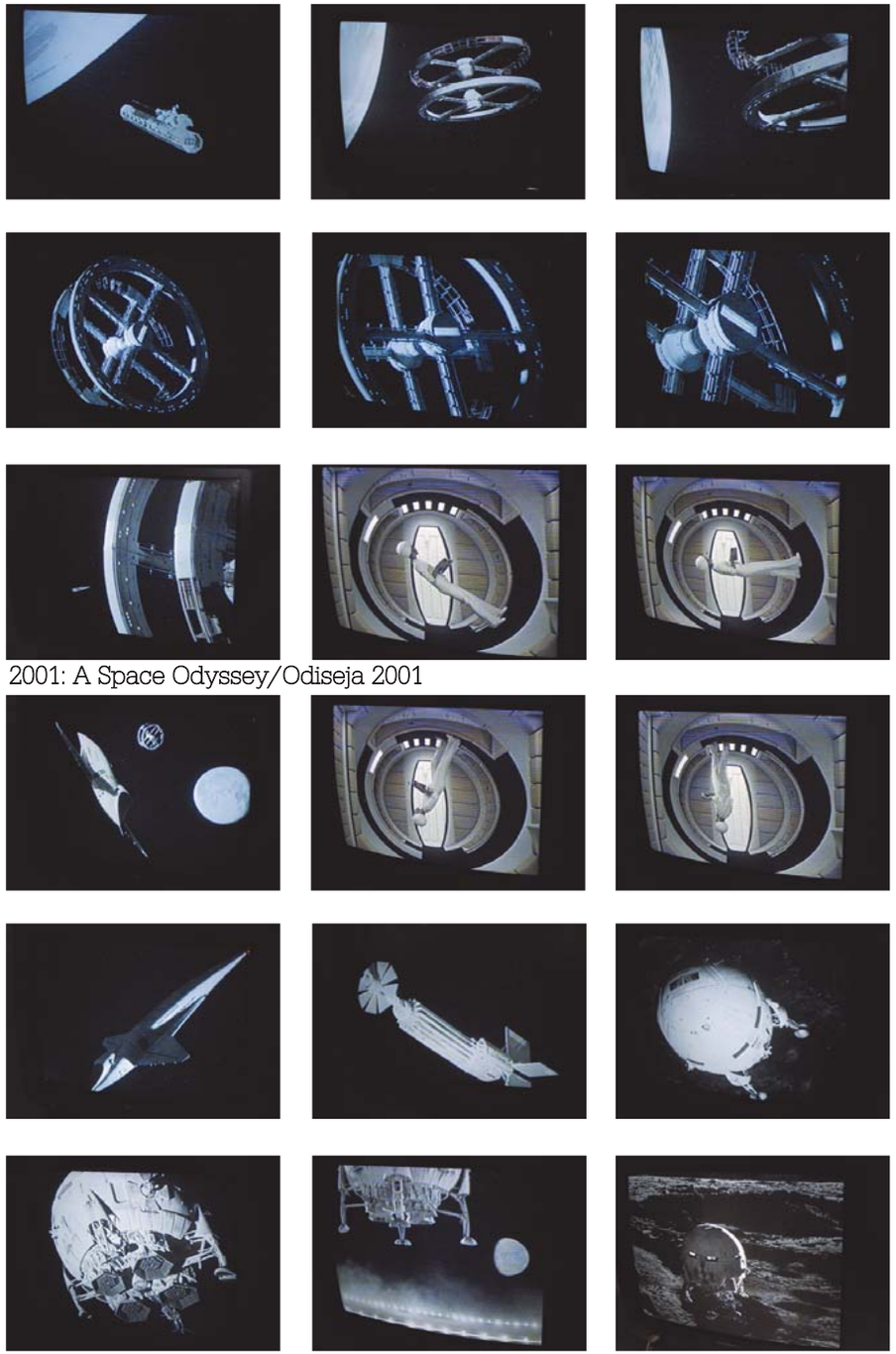
Pospeševalne sile se stopnjujejo z odmikanjem od Zemlje. Èe bi se iztrgali Zemeljskemu magnetizmu bi dosegli brezteènost in brezzraènost, ki sta v vesolju fizikalni dejstvi.

Herman Potoènik Noordung je leta 1929 z jasnim, znanstvenim jezikom opisal v knjigi Problem voènje po vesolju, kako do samega roba Zemlje, naèrt in delovanje geostacionarne arhitekture, temeljne probleme lebdenja in voènjo med planeti.

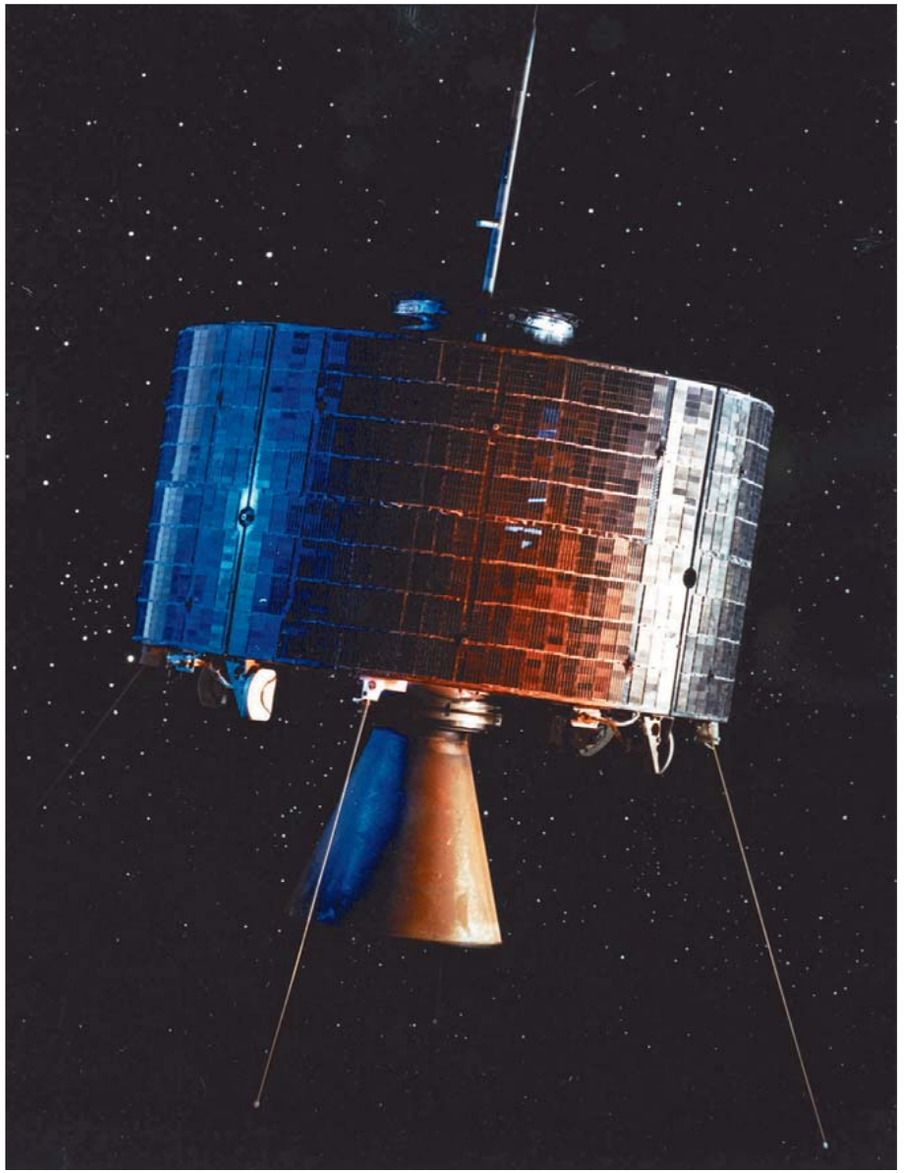
Z idejo geostacionarne postaje je Herman Potoènik Noordung vplival na znanstvenika in pisatelja Arthurja C. Clarka, ki je leta 1945 stvar razvil naprej. Ugotovil je, da bi tri vesoljske ladje, postavljene na enaki razdalji v sinhroni orbiti, lahko z radijskim in televizijskim oddajanjem pokrile celotni planet. V Sputnikovi eri, leta 1959 so se zaèeli poskusi. Takrat je vesoljski entuziazem dosegel vrh.

A ski jump/Smuèarski skok

Leta 1963 so v Hughes Aircraft Company po vrsti poskusov izstrelili v orbito Syncom 1, ki je pomenila prvo uresnièitev Potoènikove zamisli geostacionarnega satelita v komunikacijske namene. Po izstrelitvi je izginil neznano kam. Danes kroži okoli ekvatorja veè kot 180 aktivnih naslednikov.



2001: A Space Odyssey/Odiseja 2001



The Syncom 1 from 1963 represented the first accomplishment of Potoènik's idea about a geostationary satellite for communication purposes./
Syncom 1 iz leta 1963 je pomenil prvo uresnièitev Potoènikove zamisli geostacionarnega satelita v komunikacijske namene.

Noordung's model was visually realised in Kubrick's film 2001: A Space Odyssey at a popular cultural scene. Arthur C. Clarke, who was well informed about Noordung's visions, used his idea as a scenarist and developed it as a science-fiction story. A special model of *a geostationary wheel* was constructed for the film.

In the nineties, the Slovene director Dragan ivadinov discovered that Noordung actually originates in the geographic space of Slovenia (the former Austro-Hungarian monarchy), so he resumed the artistic mythology from the scientific avant-garde - Herman Potoènik Noordung. Moreover, by organising lectures around Slovenia and Europe, actions, performances, and theatre, the Noordung Cosmo-kinetic Cabinet spread information of Potoènik's pioneer visionariness in Slovene origins.

One of ivadonov's numerous ideas is that the state of Slovenia should buy the model that was presented in Kubrick's film, and to build and set up a monument in Vitanje, where Noordung went to school. The state would thus symbolically pay its respects to Noordung.

i vadinov's identification with Noordung relates to the artistic avant-garde of the time. ivadinov is namely an expert of Slovene historical avant-garde (Avgust Èernigoj, Edvard Stepanèiè, Josip Vlah and Giorgio Carmelich), as well of German (Bauhaus) and Russian (Kazimir Maleviè) historical avant-garde. It all concerns the so-called *retro-garde* concept of art in connection with the science of the 1920s in the geographic space of eastern Europe, to which i vadinov is strongly attatched in a cultural respect.

Dragan ivadinov, the spiritus agens of the Noordung project, is *a retrogardist*. *The retrogardism* is a Slovene unique definition from the 1980s, which eclectically connects notions, methods and knacks of historical avant-garde with modernistic aesthetic and ideological phenomena. Various *retro-garde* departments of the Neue Slowenische

Na popularni kulturni sceni se je Noordungov model vizualno realiziral v Kubrickovem filmu Odisejada 2001. Arthur C. Clarke, ki je bil dodobra seznanjen z Noordungovimi vizijami, je kot scenarist uporabil njegovo idejo, ki jo je razvil v znanstveno fantastièno zgodbo. Posebej za film so dali narediti scenografski model *geostacionarnega kolesa*.

V devetdesetih je slovenski gledališki reiser Dragan ivadinov odkril, da Noordungovo zivljenje pravzaprav korenini tudi v slovenskem geografskem prostoru (bivši Avstroogrski monarhiji) in umetniško mitologijo povzel po znanstveni avantgardi - Hermanu Potoèniku Noordungu. Ne samo to, s predavanji po Sloveniji in Evropi, z akcijami, performansi in gledališèem Kozmokinetièni kabinet Noordung širi informacije o njegovem pionirskem vizionarstvu in slovenskem poreklu.

Ena izmed številnih ivadinovih idej je tudi ta, da bi slovenska dr ava odkupila model, predstavljen v Kubrickovem filmu, po njem naredila spomenik in ga postavila v Vitanju, kjer je Noordung hodil v šolo. Tako bi se dr ava poklonila Noordungu na simbolni ravni.

i vadinova identifikacija z Noordungom se navezuje na umetniške avantgarde tistega èasa. ivadinov je namreè poznavalec slovenske zgodovinske avantgarde (Avgust Èernigoj, Edvard Stepanèiè, Josip Vlah in Giorgio Carmelich) kot tudi nemške (Bauhaus) in ruske (Kazimir Maleviè). Gre za t.i. *retrogardni* koncept povezovanja umetnosti in znanosti dvajsetih let prejšnjega stoletja na vzhodnoevropskem geografskem prostoru, v katerega je ivadinov kulturno vrašèen.

Dragan ivadinov, spiritus agens projekta Noordung, je *retrogardist*. *Retrogardizem* je slovenska unikatna definicija iz osemdesetih, ki eklektièno zdru uje pojme, metode in prijeme zgodovinskih avantgard z modernistièni estetskimi in ideološkimi fenomeni. Razlièni *retrogardni* oddelki skupine Neue Slowenische Kunst so razvršèeni po monumentalnem, piramidalnem in statièni vzorcu. Njihova skupna

Kunst group are classified according to monumental, pyramidal and static patterns. The common definition is art as ideology. ivadinov's art is based on that and the two axioms: outer space as the space of art, and marketing as a means of realisation of ideas.

The Red Pilot Cosmo-kinetic Theatre, which presents the predecessor of the Noordung Cosmo-kinetic Cabinet, used science-fiction patterns already in the late 1980s. *Retrogardists* deal with the past and future linearly. This could be represented symbolically by Janus's head, which consists of two halves that are oriented backwards (left) and forwards (right). It actually denies interactivity, which could diminish the initial idea.

As they understand the past, from which they can freely choose whatever they want, the same goes for the future; planned, without any doubt. The Noordung Cosmo-kinetic Cabinet unfolds according to a pre-set 50-years project. Performances take place every ten years and in case of the death of any of the members, he or she is replaced by a symbol. The project will end in 2045, when the last one, ivadinov will be launched into geostatic orbit.

In meantime ivadinov retired; he was 36 years old. In 1998, he joined a group of candidates as a theatre director. Their aim was to provide a commercial flight into outer space from the Space city near Moscow in 2003. ivadinov also signed the contract with representatives of Russian cosmonauts to work out a theatre piece on the Iljušin airplane, where they would attain a brief period such as the one described by Herman Potoènik Noordung. The real fact corresponded

The 50-years Project Noordung/
50-letni projekt Noordung (1995-2045)

definicija je umetnost kot ideologija. Tako tudi ivadinova umetnost temelji na tem in še dveh aksiomih: vesolje kot prostor umetnosti in trenje kot sredstvo za realizacijo idej.

Cosmo-kinetic Theatre Red Pilot: Drama Observatory *Zenit*, 1988/
Kozmokinetièno gledališèe Rdeèi pilot: Drama observatorium *Zenit*, 1988

Kozmokinetièno gledališèe Rdeèi pilot (predhodnica Kozmokinetiènega kabineta Noordung) je e konec osemdesetih let uporabljalo znanstvenofantastiène vzorce. *Retrogardisti* ravnajo s preteklostjo in prihodnostjo premoèrtno. Simbolno bi to lahko ponazarjala Januseva glava, ki je sestavljena iz dveh enakih polovic, obrnjenih ena nazaj (levo) in ena naprej (desno). V osnovi zanika vzajemnost, ki bi lahko iznièila prvotno idejo.

Kakor je razumljena preteklost, iz katere poljubno izberejo, kar jim odgovarja, tako je razumljena tudi prihodnost, naèrtovano, brez dvoma. Kozmokinetièni kabinet Noordung se odvija po vnaprej zamišljenem 50-letnem projektu. Predstave se odvijajo vsakih deset let in v primeru smrti katerega èlana ga nadomestijo s simbolom. Projekt se bo zakljuèil leta 2045, ko se bo ivadinov kot zadnji dal izstreliti v Zemeljsko orbito.

V vmesnem èasu se je ivadinov s 36 leti upokojil. Leta 1998 se je kot upokojeni gledališki reiser vkljuèil v skupino kandidatov, katere cilj je komercialni polet v vesolje leta 2003 iz Vesoljnega mesta pri Moskvi. S predstavniki ruskih vesoljcev je podpisal tudi pogodbo za predstavo na

with the idea of livadinov's artistic operation. He had made the first step towards outer space with a single aim: to be launched into geostatic orbit, similar to the protagonist in the film 2001: A Space Odyssey.

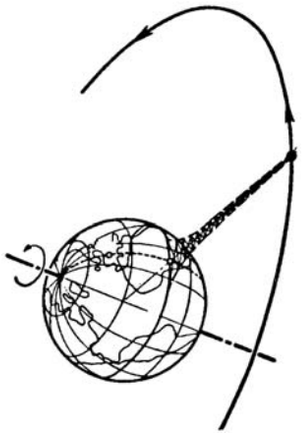
Furthermore, the triumphant ascent, conditioned with buoyancy, is closely related to the dream for fame and success. Inhabitants throughout the world knew what and how Neil Armstrong felt on the Moon. Data co-create global information using the help of satellites. Even today the formula tends to bring on a short moment of fame, broadcasting time on television all over the world as the news of the day. It's just as if it were the good old sixties.

Arthur C. Clarke and Dragan livadinov interpreted Potoènik's visions from 1929. Let us take a look at the concept.

HERMAN POTOÈNIK NOORDUNG[1]: SPACE ARCHITECTURE, 1929

Herman Potoènik Noordung visualized a geostationary satellite, which would be located at the border between the Earth's atmosphere and a weightless void. Noordung's approach is based on the principle of centrifugal force, which is caused by circular movement, and establishes a stable state of levitation.

A celestial body circles the Earth in a geosynchronous orbit at a speed matching the Earth's rotation: once in a day, i.e. the so-called *stationary orbit*. If *the stationary orbit* were exactly in geostationary orbit over the equator, the celestial body would remain above a fixed spot on the equator at a height of 35,900 km above the Earth's surface with regard to the Earth's radius, which is 6,400 km. The body represents the peak of



letalu Iljušin, kjer v parabolièn em letu dosellejo kratkotrajno stanje, kakor ga je opisal Herman Potoènik Noordung. Realna dejstva so se ujela z idejo livadinovega umetniškega delovanja. Priblial se je vesolju s ciljem, da se da izstreliti v Zemeljsko orbito - podobno kot protagonist v filmu Odiseja 2001.

Kozmonavtski podmladek - Od 470 tisoč ljudi, ki so se potegovali za to, da bi leta 2003 poletel v vesolje, jih je po večfaznih selekcijah ostalo le 14 najboljših. Mogoče se bo kateremu izmed njih želja le uresničila.

Dragan Živadinov

Trening za vesolje

Kup neverjetnih izkušenj Dragana Živadinova v kozmonavtskem centru Jurija Gagarina in kazahstanskem Bajkonurju

Kot je znano, je Dragana Živadinova, znanega slovenskega eneskaljevca, retrogardista, borca za abstraktni izraz, konstruktorja edinstvenih umetnosti, upokojenega globalikarga reliserja in še kaj, ena izmed tobačnih multinacionalk povabila k pripravam na komercialni polet v vesolje, predvidoma leta 2003. Akcija West in Space se je začela že 1992., potreka pa tako, da vsako leto izberejo skupino ljudi, ki opravi najzapostenejše teste in treninge, potrebne za bivanje v vesolju. Leta 2003 naj bi dva izmed njih dobila povabilo za let z ruskim Sojuzom.

Po temeljitih fizičnih in psihičnih preizkušnjah najprej v belgijskem in nato nemškem vesoljskem studiju se je skupinica letečih izbranc*ev, med katerimi je bil tudi Živadinov, podala le na tiritnajstdnevni trening v podmoskovsko Zvezdno mesto in na kazahstanski kozmodrom Bajkonur. Živadinov je bil po vrnitvi iz Kazahstana vzhičen in zbrazim novosnanjem na ponedeljkovi skupni slovesnosti na Dunaju razkril, od kod vsa ta evforija.

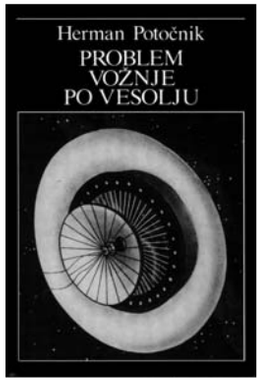
Oprati s 25 kilojutlih preizkusov, ki jih opravijo tudi pravi astronavti, med drugim preizkušnja na stolu za ravnotežje iz akrobatski in parabolièni let, bil pa je tudi v centrifugi. »Ko sem stopil v centrifugalni stroj, je bil obrtnik enak nuli. Vsi čas sem si pel pesmico, ki jo poje Romana Šalehar v moji priredbi«, v Obredu poslavljanja.«

Po besedah slovenskega strokovnjaka Vojka Kogja gre za največjo centrifugo na svetu, dolgo kar 18 metrov. V njej ustvarjajo vakuum, povišan pritisk, spremljajo sunkovite plinov in poljubno uravnavajo temperaturo, astronavti pa se pripravljajo tudi na preobremenitve, ki nastanejo zaradi delovanja centrifugalne sile. Živadinov je »ožrtal« 4 g, kar pomeni, da se je njegova teža dvignila na okoli 300 kilogramov.

Z največjo neutrpnostjo je pričakoval preizkušnjo v letalu za simulacijo levitacije. Letalcu je na začetu, ko letalo po strmem zaletu izključi motorje in preide na parabolično trajektorijo. »Povedali so nam, da se enaramo med letalcem dišati za drog pri tleh, podobno vstanu, ki ga uporabljajo baletke. Toda nenadoma mi je upodobilo, izpustil sem drog in poletel k stropu. Vsi so se ne-

Zakaj je vesolje v čiščenju Dragana Živadinova tako pomembno, poznavalcem sigurno ustreznost ni treba ponoviti razlagati. Leta 1995 je namreč izdal poslanico.

Arthur C. Clarke in Dragan livadinov interpretirata Potoènikove vizije iz leta 1929. Poglejmo natanèneje ta koncept.



HERMAN POTOÈNIK NOORDUNG[1]: VESOLJSKA ARHITEKTURA, 1929

The newspaper's article/Èasopisni èlanek
Delo, 24. 9. 1998

The frontpage of the Noordung's book/
naslovnica Noordungove knjige, Ljubljana, 1999

Herman Potoènik-Noordung si je zamislil geostacionarni satelit, ki bi stal na sami meji med zemeljskim ozraèjem in brezteno praznino.

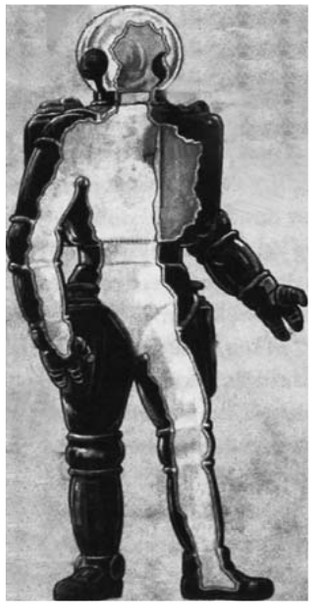
Toda ne samo to, triumfalni, z vzgonom v višino pogojeni dvig, je povezan s sanjami o uspehu in slavi. Vsi Zemljani smo vedeli, kaj in kako Neil Armstrong doživlja na Luni. Podatki so preko satelitov postali globalne informacije. Še danes ta formula prinese minuto slave, èas predvajanja na vseh televizijskih sprejemnikih na zemeljskem globusu kot novico dneva. Kot v dobrih starih šestdesetih letih.

an exceedingly tall tower, which naturally does not exist, and its capacity is substituted by the operating centrifugal force.

During travel in space, a free-fall can last for weeks and the body can be permanently withdrawn from the influence of gravity by an opposite inertia force, which appears during orbiting, i.e. the centrifugal force. The space observatory hereby reaches the state of infinite zero gravity.

Bodies in weightless space move according to the law of inertia until they are detained in the coincidental and linear direction of their motion, however they remain subordinate to their own forces (molecular, electric, magnetic, mass-attractive and other), which operate among or within them.

In outer space, the individual has to be sealed in an utterly hermetic cover, in which pressure and its components are artificially and constantly maintained by automatic devices. If the individual wanted to spend time outside the closed shield in outer space, he would need to use a hermetic suit with integrated devices that would supply the air; these devices are rather similar to the more familiar diving suits.



A spaceman's suit/
vesoljska obleka

Air influences the genesis of natural phenomena: heat, light, and predominately sound. Sound is the phenomenon of the oscillation of air; therefore, it doesn't exist where there is no air. Concurrently, immutable silence rules outer space, except in artificially maintained places. We communicate over phones in space suits.

Noordungov pristop temelji na principu sredobežnosti, ki ga povzroèi krožno gibanje, in vzpostavi stabilno stanje lebdenja.

Telo na prostem obhodnem tiru obkroži Zemljo z isto hitrostjo kot se vrti sama: enkrat v enem dnevu, to je t.i. *stacionarni obhod*. Èe bi bil obhodni tir natanèno v ravni ekvatorja, bi telo trajno obtièalo nad eno in isto toèko nad ekvatorjem, in sicer na višini 35.900 km nad zemeljsko površino glede na Zemljin polmer, ki meri 6400 km. Telo predstavlja konico neznansko visokega stolpa, ki seveda ne obstaja, njegovo nosilnost pa nadomešèa delovanje sredobežnosti.

Pri vesoljski vožnji lahko prosti pad traja tedne, telo pa je možno tudi trajno odtegniti delovanju teže z nasprotno delujoèim, med prostim krožnim gibanjem nastalim vztrajnostnim uporom, sredobežnosti. Vesoljska opazovalnica se tako znajde v neskonènem stanju brezteže nosti.

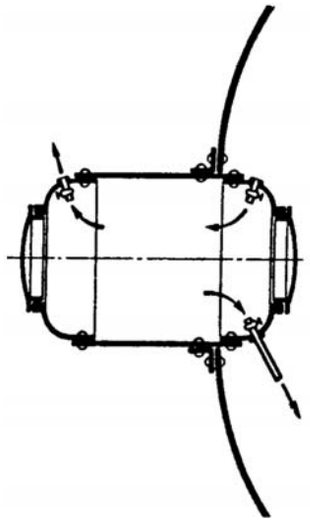
Telesa v brezteže nostnem prostoru se gibljejo le še po vztrajnostnem zakonu, dokler jih v njihovi nakljuènostni in premoèrtni smeri gibanja kaj ne zavre, ves èas pa se podrejajo lastnim silam (molekularnim, elektrièni m, magnetnim, maso privlaèujoèim in siceršnjim), ki delujejo med njimi ali pa v njih.

Èlovek mora biti v vesolju vedno zaprt v popolnoma neprodušen ovoj, v katerem bi s samodejnimi napravami umetno vzdrževali pravilni zraèni tlak in njegovo sestavo. Èe bi se hoteli zadrževati izven takega zaprtega prostora v odprtem vesolju, bi morali uporabljati neprodušno obleko, notri pa bi morali biti aparati, ki bi jo oskrbovali z zrakom: te naprave so precej podobne znanim potapljaškim oblekam.

Zrak vpliva na nastanek naravnih pojavov: na toploto, svetlobo, najbolj pa na zvok. Zvok je pojav nihanja zraka, zatorej ga ni, kjer ni zraka. Zato vlada v vesolju veèna tišina, razen v umetno vzdrževanih prostorih. V vesoljskih oblaèilih se sporazumevamo preko telefona.

Light conditions change as well. The bottom vault of sky is shrouded in the deepest black, from which the stars and glossy sunlight shine. Yet, if we turn to the side, there is dark, but not completely. Stars shine from all sides, and even the Earth or Moon might reflect some light onto the celestial bodies that are hidden behind the Sun. However, the light is always sharp and shrill, never soft or dispersed.

Unlimited and favourable possibilities are available at all times for observation. And since there are no optical obstacles, we are able to use telescopes of various sizes, even the giant ones.



Outer space is practically without any warmth. In order to heat up an object in space, the side facing the Sun should be rough and black, while the side in the shade should be bright and reflective.

The space observatory needs to be hermetically sealed from the outside world. Outer space could thus be reached only through airlocks, which are familiar to us from devices used in underwater constructions.

An airlock/Zraèna zapora

The space observatory is divided into three objects. Around the mass centre (the centre of gravity), the parts of the observatory that need to reach the centrifugal force, and hereby the conditions of gravity, would need to orbit. However, then it would be much more difficult to enable free entry and exit into the orbiting parts of the observatory simultaneously without any danger, as well as to connect cables and to install huge collectors.

All the supplies that are necessary for survival in space need to be brought from Earth, and consequently, it would be beneficial to con-

Tudi svetlobne razmere se spremenijo. Nebesno dno je zagrnjeno v najglobjo èrnino, iz katere se svetlikajo zvezde in slepeè sonèni sij. Toda èe odvrnemo pogled, je tema, vendar ne popolna. Z vseh strani svetijo zvezde, morda pa celo Zemlja ali Mesec z odsevanjem osvetljujeta v Sonèevi senci le leèa telesa. Vendar pa je to vselej ostra, rezka, nikoli pa blaga, razpršena svetloba.

Za opazovanje se vselej nudijo ugodne, neomejene možnosti; ker ni veè optièni ovir, moremo uporabiti teleskope poljubne velikosti, tudi orjaške.

Vesolje je praktièno brez toplote. Èe hoèemo, da se v vesolju kak predmet segreva, moramo poskrbeti, da je njegova proti Soncu obrnjena stran hrapava in èrna, senèna stran pa svetla in zrcalna.

Vesoljska opazovalnica mora biti navzven neprodušno zaprta. V odprto vesolje bi lahko prišli le skozi zraène zapore, ki so nam znane iz naprav za podvodno gradnjo.

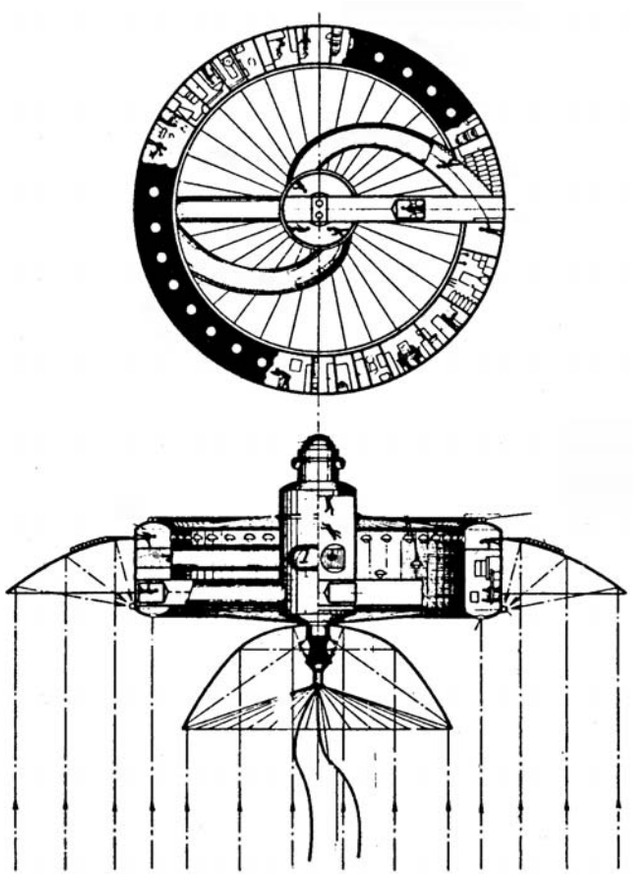
Vesoljska opazovalnica se deli na tri objekte. Okoli masnega središèa (težišèa) bi morali ustrezno hitro kroziti tisti deli opazovalnice, kjer bi želeli doseèi sredobežnost, z njo pa težnostne razmere. Telje pa je hkrati izpolniti zahtevo, da bi v te krožeèe dele opazovalnice brez nevarnosti vstopali in izstopali, da bi nanje priključevali kabelske vode in namešèali velika zbiralna zrcala.

Vse za življenje potrebne snovi moramo dovažati z Zemlje, pri èemer seveda velja naèelo gospodarnosti, varènosti. Izkoristiti je treba sonèno energijo za pogon vsakovrstnih tehniènih naprav, še posebej pa takih, ki omogoèajo ponovno uporabo odpadnih uporabljenih snovi. Najpomembnejša naprava vesoljske opazovalnice je sonèna elektrarna.

Opazovalnica bi se delila na tri objekte: *bivalno kolo*, v katerem bi z rotacijo vzdrževali umetno težnostno stanje in ustvarjali enake življenjske pogoje kot vladajo na Zemlji, torej bi bili v njem normalni naèini za živ-

sider economical principles. Solar energy could be exploited for various kinds of operating devices; especially those that enable the re-use of defective and used material. The most important device in the space observatory is the solar plant.

The space observatory would be divided into three objects. Firstly, *the inhabitable wheel*, in which artificial gravity would be created by rotation of a wheel and hereby generate the same living conditions as on the planet Earth. The wheel would furnish a normal way of life. There would be also *the observatory* and *the engine room*, in which zero gravity would be maintained, and they would be used solely for special occsions since the team would perform tasks there provisionally.



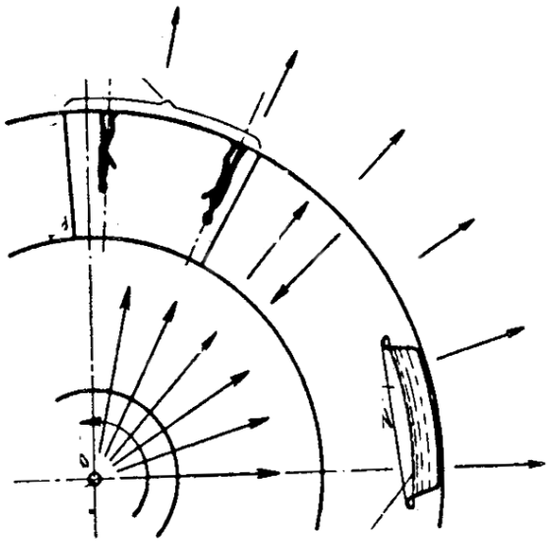
The inhabitable wheel: A view of the side, which permanently faces the Sun, without a collector, and a partial cross-section view./*Bivalno kolo*: pogled na stran, ki je stalno obrnjena k Soncu, brez zbiralnega zrcala in delno v prerezu.

ljenje in prebivanje; *observatorij* in *strojnico*, v njih pa ostane brezte⌧nostno stanje in sta urejena le za posebne namene, saj bo v njej moštvo le prehodno opravljalo svoje delo.

Opazovalnica ima obliko velikega kolesa, njegov torus (svitek) sestavljajo celice, ima pa obliko prstana, ki je z ⌧ièenimi naperami pripet na os. Prostori v notranjosti so dostopni iz zaprtega hodnika. Tako dobimo: posamezne sobe, veèji prostor za spanje, delovne in študijske prostore, shrambe, laboratorije, delavnice, temnice itd., pa tudi obièajne prostore, kot npr. kuhinjo, kopalnico ipd. Vsi ti prostori so urejeni tako, da vlada normalno te⌧nostno stanje.

To pa lahko dose⌧emo, èe se npr. zgradba s premerom 30 m vrti tako, da napravi cel zasuk v pribli⌧no 8 sek.; saj le tedaj nastane v svitku tolikšna sredobe⌧nost, kot je te⌧nost na Zemljinem površju.

Medtem ko deluje slednja proti središèu, pa je sredobe⌧nost naravnana navzven. Zato v *bivalnem kolesu* pomeni *navpièno*, nasprotno kot na Zemlji, preèno smer od središèa, torej osi vrtenja, navzven.



Proportions of directions in the *inhabitable wheel*/ Razmerja smeri v *bivalnem kolesu*.

The observatory is in the shape of a huge wheel; its torus is composed of cells, and the shape resembles a ring that is attached to its axis by spokes. Rooms in the interior are accessible from a sealed corridor. There are separate cabins, a large sleeping room, studies, stores, laboratories, workshops, dark rooms etc. All rooms are arranged in such a way as to maintain normal gravity.

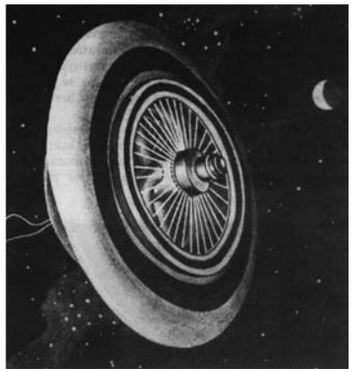
Normal gravity is achieved if, for example, a building with a diameter of 30 metres rotates in such a way as to perform a loop in approximately 8 seconds; at that point the centrifugal force in the torus increases to a level similar to that of gravity on Earth.

While gravity works inwards, the centrifugal force is directed outwards. Therefore, *vertical* in *the inhabitable wheel* means (contrary to what it means on the Earth) a transverse direction from the centre (i.e. the axis of rotation) outwards.

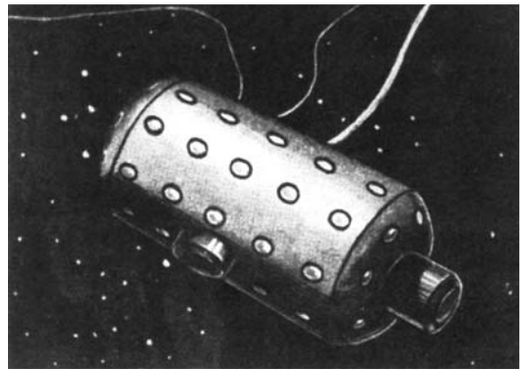
Communication among separate objects is established, either by light signals or a radio, or even by wire. Therefore, all three objects are equipped with local stations, and furthermore, also with cables that can transmit electric current and connect them.

DRAGAN IVADINOV: ZERO GRAVITY, 1999

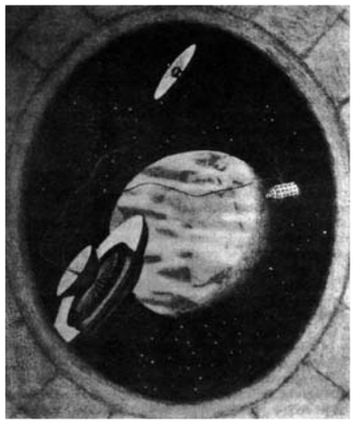
In August 1999, six theatre people flew, from the Jurij Gagarin centre in the Iljušin airplane, which served as a theatrical stage, 6,000 - 10,000 metres high over Moscow and fifty kilometres away from Moscow. They were accompanied by cosmonauts, who were to carry out the experimental project of setting the theatre in different spheres, under different conditions and setting it upside down. "Vacuum vade mecum" were the words performers uttered as they awaited the forthcoming levitating experience.



A view of the dark side of the inhabitable wheel/
Pogled na senèno stran bivalnega kolesa.



An example of how to construct an observatory. Due to the high pressure of 1 atm, which is prevalent, it is in the shape of a barrel. The airlock, electric cables (left), a flexible air-pipe (right) and a lightning-line are all visible./
Zgled za izdelavo observatorija. Zaradi visokega tlaka 1 atm, ki v njem prevladuje, ima sodasto obliko. Vidimo lahko zraèno zaporo, elektrièna kabla (levo), prolno cev za zrak (desno) in line za osvetljevanje.



The entire space observatory with three objects, as we see it through a round-lock of the space ship. In the background is the Earth, which is 35,900 km far away. The centre of the rim is the point on the Earth's equator, above which the space observatory hovers all the time. Presumably, this point would be located on the Berlin meridian, i.e. somewhere around the south peak of Cameroon./
Celotna vesoljska opazovalnica s tremi objekti, kot jo vidimo skozi obhodno odprtino vesoljske ladje. V ozadju je Zemlja, oddaljena 35.900 km. Središèe njenega oboda je toèka na zemeljskem ekvatorju, nad katero nenehno lebdi vesoljska opazovalnica. Domnevno bi ta toèka lelala na berlinskem poldnevniku, in sicer nekje okoli julne konice Kameruna.

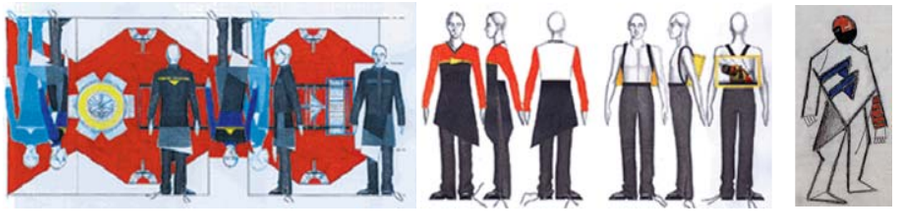
Cosmo-kinetic Theatre Noordung (Dragan Ilivadinov):
Zero Gravity, 1999/
Kozmokinetièno gledališèe Noordung (Dragan Ilivadinov):
Gravitacija niè, 1999

Sporazumevanje med posameznimi objekti vzpostavimo, bodisi s svetlobnimi signali bodisi z radijem, konèno pa tudi po lici. Zato so vsi trije objekti opremljeni z lastnimi lokalnimi postajami, vrhu tega pa so še med seboj povezani s kabli, po katerih obenem prenašamo jaki tok.

DRAGAN ILIVADINOV: GRAVITACIJA NIÈ, 1999

Šest gledališènikov je avgusta 1999, petdeset kilometrov od Moskve, iz Centra Jurij Gagarin v letalu Iljušin, ki je služilo kot gledališki oder, poletelo med 6000 in 10.000 metrov visoko nad Moskvo. Spremljali so jih vesoljci, da bi uresnièili eksperimentalni projekt postaviti gledališèe v drugih sferah, pod drugimi pogoji, ga postaviti na glavo. "Vacuum vade mecum," so izgovarjali igralci in èakali na izkušnjo lebdenja.

1 2 3



1., 2. Dunja Zupanèiè: Costume sketches for The Zero Gravity/
Kostumske skice za Gravitacijo niè, 1999,
3. Kazimir Severinoviè Maleviè: a sketch for a theatre costume/
skica za gledališki kostum, 1915

"Ravnotežnostni organ v notranjem ušesu je domnevno edini organ, na katerega bi utegnila vplivati odsotnost teže. Pojem ravnotežja v brezteže nostnem stanju neha obstajati. Zatorej imamo v vsakem telesnem položaju enake obèutke; *zgoraj* in *spodaj* bi glede na okolico izgubila svoj obièajni pomen; tal, stropa in sten neke sobe ne bi veè razlikovali med seboj.

Duševni vtisi naj bi si sledili tako: pri hitrem, neposrednem nastopu brezteže nosti - obèutek strahu; možgani in èutila delujejo izredno hitro,

"The organ in the internal ear that accounts for balance is presumably the only organ that could be influenced by the absence of weight. All in all, it might not serve its purpose properly any longer; the notion of balance would cease to exist in weightless space. Therefore, we might experience the same sensation in all positions of our body: *above* and *below* would lose their traditional meaning due to the changed conditions, and the floor, ceiling and walls would become indistinctive for us.

Mental impressions are supposed to ensue in the following order: after a fast, direct manifestation of weightlessness, the feeling of fear; the brain and senses function extremely fast, thoughts are real, sudden and logical; time seems to run slower; the feeling of insensibility for pain appears and the feeling of discomfort. Later on, these phenomena disappear; what remains is the feeling of intensified pressure and freshness, similar to that caused by taking stimulants for nerves until the mental state goes back to normal after a longer period of adaptation," explained Noordung hypothetically.

The experiment finished too early to be able to answer the question of altered form, motion and words under new conditions. Èerniševski posed a question a long time ago: What to do? He even wrote a book regarding the new social circumstances of soviet communism. ivadinov might pose the same question: what to do in outer space while waiting for human perception and consciousness to change, and while the body (still) hasn't adapted to the new conditions.

i vadinov thinks that zero gravity enables abstract art. Fine art is based on the concepts of above, below, left and right. Mayerhold's abstract, stable scheme of gravitational theatre and the precise coding of body positions falls apart at zero gravity. Yet, at this point in Maleviè's degree of nothing, the Absolute comes into being.

misli so stvarne, hitre in logiène; èas teèe dozdevno poèasneje; nastopi neobèutljivost za boleèine in obèutek neugodja. Kasneje ti pojavi izginejo, ostane obèutek poveèane napetosti in sve line, podobno kot pri u ivanju sredstev za spodbujanje ivèevja, vse dotlej, dokler po daljšem prilagajanju ne postane duševno stanje spet normalno," hipotetièno razlaga Noordung.

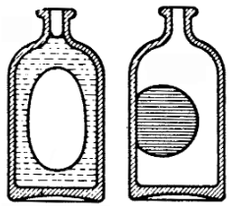
i vadinov poskus se je konèal prehitro, da bi lahko odgovorili na vprašanja forme, giba in besede v novih pogojih. Èerniševski se je nekoè vprašal: “Kaj poèeti?” In napisal knjigo o novonastalih pogojih ruskega socialnega realizma. Prav tako se morda sprašuje ivadinov, kaj poèeti v vesolju, medtem ko èakamo na spremembo èloveške zaznave in zavesti, ko telo (še) ni prilagojeno na spremenjene razmere.

i vadinov meni, da gravitacija nè omogoèa abstraktno umetnost. Upodabljajoèa umetnost temelji na zgoraj, spodaj, levo in desno. Meyerholdova abstraktna, stabilna shema gravitacijskega gledališèa, natanèno kodiranje telesnih poz se sesuje na gravitaciji nè. Toda nastopi stopnja Malevièevega nièa, Absolutno.

Wsewolod Meyerhold: Biomechanical Exercises/
Biomehanske vaje, 1922

In *the observatory* and in *the engine room* Noordung precisely anticipated the organisation of life, including how different substances behave in levitation state. Since there is no weight, separate particles of mass must follow molecular forces and adjust to their performance. All mass tends towards common gravity, and a distance of one meter can last for hours.

1 2



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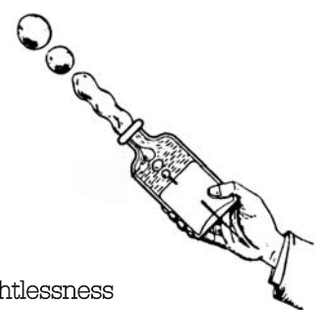
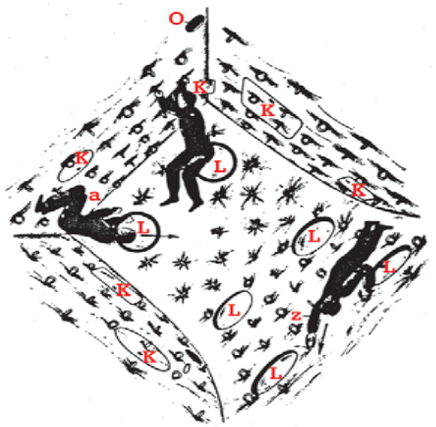


1. Organising in only partially filled bottles in weightlessness
2. The reaction of mercury in a bottle in weightlessness
3. Emptying a bottle in weightlessness by pulling
4. Rotation

Picture A: A room with zero gravity in the space observatory. It is suitably equipped: the walls are embedded and equipped with handles. There are no objects present. K - a cabinet, L - light openings, O - airlocks, z. - people moving around the space by the holding of hands, a. - people moving around the space by pushing

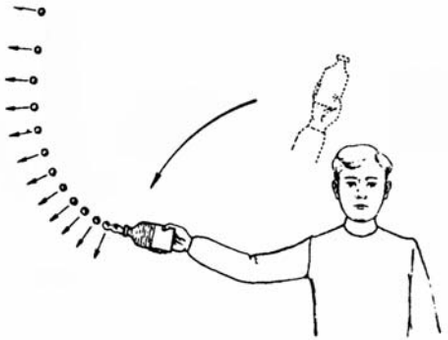
Picture B. Preparations for writing in zero gravity: we must be attached to a desk by leather straps (G) to remain in position. A man floats through the door (T) and carries an object from the other room.

A



Organizacijo livljenja v *observatoriju* in *strojnici* je predvidel Noordung natanèno, tudi obnašanje razliènih snovi v lebdeèem stanju. Ker ni teže, morajo posamezni delci mase neovirano slediti molekularnim silam in se ravnati po njihovem delovanju. Vse mase težijo proti skupnemu težišèu, pri tem lahko pot enega metra traja cele ure.

4



1. razporeditev v le delno napolnjeni steklenici pri odsotnosti teže
2. obnašanje živega srebra v steklenici pri odsotnosti teže
3. praznenje steklenice v brezteže-nem stanju s potegom
4. krožno vihtenje

B

Risba A: Soba v vesoljski opazovalnici, v kateri vlada brezteže-nostno stanje, zato je tudi primerno opremljena: stene so v celoti obložene in opremljene z ročaji za oprijemanje. V njej ni predmetov. K - omarica, L - svetlobne èine, O - prezračeval-ne odprtine, z. - ljudje se gibljejo po prostoru s preprijemanjem, a. - ljudje se gibljejo po prostoru z odrivanjem.

Risba B: Priprave za pisanje v brezteže-nostnem stanju: na pisalno mizo se moramo prièvrstiti, npr. z usnjenimi jermeni (G), da bi ob njej obstali. - Skozi vrata (T) je priplaval èlovek, ki nosi predmet iz sosednjega prostora.

The influence of Noordung on contemporary science is not questionable. He was among the first to note zero gravity in the human consciousness as experienced by cosmonauts. In the year 2000, Noordung's text can be read with an obvious and slightly roguish expression, since it needs no special explanation. We know what he speaks of and he is quaintly old-fashioned. Yet, what is astonishing is the authenticity of his writing in the distant year 1929. The question remains as to when space ships are to become inhabitable for those who would, in one's own initiative and not according to some scientific or political pathway, want to experiment with it. In the sphere of art, Ivadinov is one of pioneers.

"When pushing, we need to take care not to push away into the wrong direction and flow into an infinite, deadly space void."

2001: A Space Odyssey/Odisejada 2001

Herman Potoènik Noordung (1892-1929)

Vpliv Noordunga na sodobno znanost in kulturo ni sporen. Med prvimi je zapisal v èloveško zavest stanje brezteènosti, kot so jo podoživljali vesoljci. Leta 2000 beremo Noordungov tekst s samoumevnim, rahlo hudomušnim izrazom, saj ne potrebuje pojasnil, vemo, o èem govori in simpatièno je zastarel. Toda osupljiva je verodostojnost tega pisanja iz daljnega leta 1928. Vprašanje je, kdaj bodo vesoljska plovila postala bivalna okolja za tiste, ki bi samoiniciativno, ne po znanstveni ali politièni poti želeli s tem eksperimentirati. S podroèja umetnosti je v takšnem kontekstu Ivadinov gotovo eden izmed pionirjev.

"Pri odrivu je treba paziti, da se na prostem ne odrinemo v napaèno smer in ne odplavamo v brezkonèno, smrtonosno vesoljsko praznino."

[1]The problem of Space Travel, Berlin, 1929 was one of the basic works during the pioneer days of aeronautics. The author Herman Potoènik, a Slovene, took the assumed name of Herman Noordung. Born in Pula, in Croatia, 1892, he also lived in Maribor, where he attended primary school. He graduated from the Technical Military Academy in Mödling as a lieutenant, specialized in building railways and bridges. During WWI, he fought at battlefields in Serbia, Bosnia and Galitsia and was promoted to the rank of Oberrlieutenant. Because he suffered from tuberculosis, he went into retirement in 1919, having reached the rank of captain. From 1918 to 1922, he studied engineering in Vienna; he graduated in 1925. He devoted himself entirely to problems concerning rocket and space technology. He shared his ideas with some contemporaries, such as Hermann Oberth and his respective circle, and this made him draw closer to the German North and to adopt the pseudonym Noordung. Struggling with his advancing illness, he finished his fundamental work in 1928. He died in 1929 in Vienna, Austria.

(The drawings are made by Noordung)

Aleksandra Kostiæ is a freelance curator and publicist. Classically educated, she began working with new and digital media gradually. Several times a coorganiser of the International Computer Arts Festival in Maribor, she is also a cofounder of an edition for Tox electronic media, an initiator of the Multimedia Center Kibla (together with P.T.Dobrila, Dejan Šampar and others) and a member of the Association for Culture and Education Kibla. Kibla is a unique result of team work. The MMC Kibla includes a cyber cafe with free access to Internet, a desktop publishing Kibla.tif, a humanities bookstore 'Za:misel' and a room for Kibela art. Kibela's program is based on the emancipation of art media and the integration of science, arts, technology, ecology, sociology and philosophy, all into a synthetic garden of creativity.

[1]Problem potovanja po vesolju, Berlin 1929, je eno temeljnih del iz zgodnjega obdobja oz. zaèetkov zrakoplovstva. Avtor Herman Potoènik, Slovenec, je prevzel izmišljeno ime Herman Noordung. Rojen je bil v Puli na Hrvaškem leta 1892, med drugim je živel v Mariboru, obiskoval osnovno šolo. Diplomiral je na tehnièni vojaški akademiji v Mödlingu kot poroènik in se specializiral v izgradnji železnice in mostov. Med prvo svetovno vojno se je bojeval v Srbiji, Bosni in Galiciji ter napredoval v nadporoènika. Obolel je za tuberkolozo in se leta 1919 upokojil, potem ko se je povzpel do èina stotnika. Od leta 1918 do 1922 je študiral strojništvo na Dunaju in postal inženir strojništva leta 1925. Popolnoma se je posvetil problemom raket in vesoljske tehnologije. Svoje izkušnje je izmenjeval s sodobniki, kot so Hermann Oberth in njegov krog, kar ga je zbližalo s severom Nemèije in prevzel je psevdonim Noordung. Medtem ko se je boril s svojo vse hujšo boleznijo, je leta 1928 konèal svoje življenjsko delo. Leta 1929 je umrl na Dunaju v Avstriji.

(Risbe so Noordungovo delo.)

Aleksandra Kostiæ je samostojna kustodinja in publicistka. Klasièno izobražena se je postopoma zaèela ukvarjati tudi z digitalnimi in novimi mediji. Bila je veèkratni soorganizator mednarodnega raèunalniškega festivala v Mariboru, soustanoviteljica zbirke Tox za elektronsko umetnost, pobudnica Multimedijskega centra Kibla (skupaj s Petrom Tomažem Dobrilo, Dejanom Štamparjem in drugimi) in èlanica Kulturno izobraževalnega društva Kibla. Kibla je enkraten rezultat skupinskega dela: kiber kavarna s prostim dostopom na Internet, namizno založništvo Kibla.tif, knjigarna Za:misel in prostor za umetnost Kibela. Kibelin program temelji na emancipaciji umetniških medijev ter povezovanju znanosti, umetnosti, tehnologije, ekologije, sociologije in filozofije v sintetiènem vrtu ustvarjanja.

LEVITATION, TELEROBOTICS AND TELEPISTEMOLOGY

Ken Goldberg

I'm interested in gravity in its various forms, so the notion of levitation is provocative. A search on the Internet brings up a variety of pages related to magnetic levitation (maglev), superconductors, and superfast trains. Levitation, as a denial of gravity, is most often associated with magic. As such, it raises epistemological issues: when we encounter levitation, we are sceptical: it violates what we know about the world. I believe this is analogous to recent developments on the Internet.

In a sense, each new technology raises such questions. For example, in the 17th century, Galileo's telescope (and Leeuwenhoek's microscope) raised fundamental epistemological questions. Descartes Meditations sought first principles for knowledge in response. There is a voluminous body of philosophical writing concerned with what we know and how we know it.

However, for the general public, epistemology is often viewed as a "philosophical" problem with little relevance to everyday life. However, web cameras and telerobotic systems provide vivid new epistemological terrain. Moreover, doubt about what is real and what is simulated provides a means to engage the otherwise neglected body of the remote "viewer".

Firstly, what is telerobotics? A robot can be broadly defined as a system where a mechanism is controlled by a computer. In telerobotics, the mechanism is remote. It sends back data and is generally controlled by a human at the other end. Master/Slave telerobotic systems have a long history dating back to the need for handling radioactive materials in the 1940s. Telerobotics is an active research area, supported by NASA and the DOD in this country and by similar agencies abroad.

LEBDENJE, TELEROBOTIKA IN TELEPISTEMOLOGIJA

Ken Goldberg

Zanima me te□nost v najrazliènejših oblikah, zato je tudi ideja lebdenja izzivalna. Iskanje po internetu nam omogoèa ogled mnogih spletnih strani, ki se navezujejo na magnetsko lebdenje (magleb), superprevodnike in izjemno hitre vlake. Lebdenje kot zanikanje te□nosti pogosto povezujejo s èarovnijo in kot tako vzbuja epistemološka vprašanja - ko se sreèamo z lebdenjem, smo v dvomih, saj na glavo postavlja vse, kar vemo o svetu. Mislim, da se to ujema z novejšimi razvojnimi dose□ki na internetu.

Na nek naèin vzbuja taka vprašanja vsaka nova tehnologija. V 17. stoletju je na primer Galilejev teleskop (in Leeuwenhoekov mikroskop) vzbudil temeljna epistemološka vprašanja, Descartove Meditacije pa so poskušale najti prvotna naèela znanja. Obstaja tudi obse□no filozofsko pisanje o tem, kaj vemo in kako to vemo.

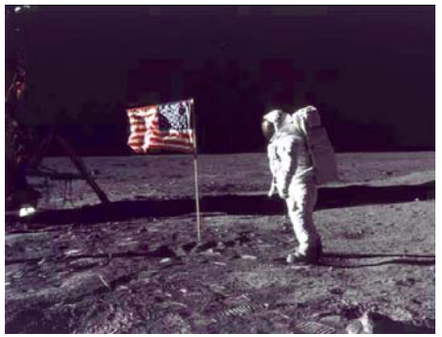
Kljub temu ljudje epistemologijo obièajno razumejo bolj kot "filozofski" problem, ki nima kaj dosti opraviti z vsakdanjim □ivljenjem. Kakorkoli □e, spletne kamere in telerobotski sistemi vzpostavljajo novo epistemološko podroèje. Še veè, dvomi o tem, kaj je resnièno in kaj simulirano, povzroèajo □ivo vklju èitev sicer zanemarjenega telesa oddaljenega "gledalca".

Najprej, kaj je telerobotika? Robot lahko širše definiramo kot sistem, v katerem raèunalnik upravlja z mehanizmom. V telerobotiki je mehanizem oddaljen. Ne samo da mehanizem pošilja podatke nazaj, temveè z njim v celoti upravlja èlovek na tej strani. Telerobotski sistemi gospodar/su□enj imajo za seboj □e celo zgodovino, tj. od leta 1940, ko se je pojavila potreba po rokovanju z radioaktivnimi snovmi. Telerobotika je polje raziskovanja, ki ga podpirajo NASA, DOD in podobne agenture po svetu.

For the first time in history, telerobotics is now widely accessible to non-specialists via the net. For examples, query *the yahoo.com* database with the keywords *interesting devices*. Web cameras are the most common, claiming to provide live remote images. Some websites use *the mouse/imagemap protocol* to permit remote viewers to direct the gaze via computer controlled *pan/tilt* mechanisms. Robotic devices provide a further level of interactivity by allowing participants to manipulate the remote environment, which may include a model railroad, sculpture, or garden.

It is important to distinguish telerobotics from Virtual Reality (VR). VR presents a simulacrum, a synthetic construction. With telerobotics, what is being experienced is distal rather than simulacral. While VR admits to its illusory nature (it has little choice: the state of computer graphics is such that it is relatively easy to recognize a computer generated scene), telerobotics "claims" to correspond to a remote physical reality.

1



2

1. U.S. moon landing in 1969/ameriški pristanek na Luni 1969
2. a *pan/tilt* camera, *pan/tilt* kamera

How is this claim justified? When visiting a telerobotic site on the net, the alert viewer inevitably wonders whether in fact the site is indeed live or a series of prestored photographs. One of the most notorious web cameras was hidden in the ceiling above a public restroom stall.

Prviè v zgodovini pa je telerobotika široko dostopna tudi laikom preko spleta, na primer iskanje preko podatkovne baze *yahoo.com* s ključènimi besedami *zanimive naprave*. Spletne kamere so sploh najpogostejše, saj zagotavljajo prenos slik na daljavo, in sicer v živo. Nekatere spletne strani uporabljajo protokol *miška/slika* in s tem omogoèajo dostop oddaljenim gledalcem do neposrednega pogleda s pomoèjo raèunalnika, ki upravlja mehanizem *pan/tilt*. Robotske naprave omogoèajo veèjo stopnjo interaktivnosti tako, da dopušèajo udeležencem manipulacijo oddaljenih okolij, ki lahko vključujejo na primer modele železniške proge, skulpture ali vrta.

Pomembno je razlikovati telerobotiko virtualne realnosti (VR). VR namreè predstavlja simulaker, sintetièno konstrukcijo. S pomoèjo telerobotike lahko izkusimo to, kar je realno, vendar oddaljeno od nas, in ne toliko simulaker. Medtem ko se VR nagiba v smer iluzornosti (na voljo je malo: trenutno v raèunalniški grafiki dokaj enostavno prepoznamo raèunalniško generirane slike), telerobotika teži k èasovnem ujemanju virtualnega z oddaljeno fizièno realnostjo.

S èim to upravièujemo? Ko kak buden obiskovalec obišèe telerobotsko spletno stran, se neizogibno vpraša, ali ta stran zares omogoèa gledanje "live" slike, ali pa si ogleduje le niz že prej shranjenih fotografij. Ena od bolj znanih spletnih kamer je bila skrita na stropu v enem od javnih stranišè. S preprostim klikom na spletni strani je vsak lahko po mili volji opazoval niè hudega sluteèe uporabnike stranišèa. Potem ko je spletna stran pritegnila že ogromno število radovednih vojerjev, so razkrili, da je "kamera" ves èas prikazovala isto nepremièno sliko praznega stranišèa. Od takrat so bile odkrite še mnoge druge telerobotske prevare na spletnih straneh, kjer so bili posnetki v živo le niz shranjenih fotografij, oštevilèenih in spravljenih v arhivskih podatkovnih bazah.

Prevara pravzaprav razkriva naravo pristnosti. Tudi v drugih medijih je bila že pogostokrat uporabljena: bankovci, dokumenti, slike, Wellsova

By simply clicking in, one could peer in on an unsuspecting subject. After attracting a great many curious voyeurs, it was revealed that the "camera" always returned the same still photograph of an unoccupied toilet. Several other telerobotic forgeries on the net have since been exposed, where indexing into a library of pre-stored photographs generated the "live camera" effect.

A forgery illuminates the nature of authenticity. Forgery has a long history in other media: currency, documents, and paintings, Wells' War of the Worlds, not to mention the widely believed U.S. moon landing in 1969. It is relatively easy to create telerobotic forgeries on the Net due to the low resolution and frame rate (faster than the delay of light from distant stars yet about 1000 times slower than television). Cyberspace is structurally different than one-point perspective space; telerobotic perspective is perhaps closer to the scopic regime of Dutch 17th-century painting.

When specialists at NASA interact with a telerobotic system, they are acting within a system of authority that gives them confidence about the reality of the system. Similarly when viewers watch live TV news broadcasts. Nevertheless, on the net, it is much harder to establish a corresponding authority. Any determined teenager can set up a live web camera or telerobotic site. Indeed, this lack of centralized authority is one of the net's primary advantages.

Lacking recourse to an external authority, how can one differentiate a live telerobotic site from a forgery? The sceptical viewer patiently examines a variety of forensic cues: how shadows fall, the effects of a repeated action, the response of gravity; precisely the primitive corporeal instincts that are so difficult to engage on the net. The most interesting sites are deliberately ambiguous, intermingling false clues with distorted truths to motivate further exploration. When at last a viewer is convinced, we might describe the result as carnal knowledge: the visceral, bodily sense that what is

Vojna svetov (*War of the Worlds*), da sploh ne omenjamo ameriškega pristanka na Luni leta 1969. Telerobotske prevare na svetovnem spletu niso prav niè zapletene zaradi nizke loèljivosti in poèasnega osve□evanja slike (še vedno hitrejše kot zakasnitev svetlobe z oddaljenih zvezd, a kljub temu stokrat poèasnejše od televizije). Kiber prostor se razlikuje od enotoèkovnega perspektiviènega prostora; telerobotska perspektiva je morda bli□e skopièni obliki nizozemskega slikarstva v 17. stoletju.

Ko strokovnjaki pri NASI uporabljajo telerobotski sistem, delujejo v avtoritetnem sistemu, ki jim daje obèutek zaupanja v verodostojnost tega sistema. Podobno se dogaja, ko gledalci spremljajo TV prenos v □ivo. Toda na spletu je dosti te□je vzpostaviti ustrezno avtoriteto. Vsak dovolj vztrajen najstnik lahko sam postavi spletno kamero za opazovanje v □ivo, ali pa telerobotsko spletno stran. Kakorkoli □e, ta primanjkljaj centralizirane avtoritete je ena od osnovnih prednosti spleta.

Z izgubo zunanje avtoritete se pojavi vprašanje, kako razlikovati pravo telerobotsko stran, ki prenaša sliko v realnem èasu, in ponaredek. Skeptièni gledalec previdno pregleda vsa dokazna gradiva: kako padajo sence, uèinki ponavljajoèega se postopka, odzivanje na te□o; torej se zanese prav na preproste telesne zaznave, ki jih je tako te□ko umestiti na splet. Najzanimivejše spletne strani so namerno dvoumne, s prepletajoèimi la□nimi sledmi in popaèenimi resnicami, da bi nas tako motivirali za nadaljnje raziskovanje. Ko je gledalec konèno le preprièan, lahko opišemo izid kot meseno spoznanje: organsko, telesno obèutje, da je to, kar smo izkusili, "resnièno". S tem ne merim na meseno spoznanje, kot je zapisano v svetem pismu, èeprav se oba pomena ne izkljuèujeta.

Sicer pa - je sploh pomembno, ali je telerobotska spletna stran resnièna ali ne? Za veèino obièajnih spletnih deskarjev verjetno res ne, popolnoma druga pesem pa je pri tistih, ki jim ni vseeno, ki vestno uporabljajo delujoèo telerobotsko spletno stran in pri tem odkrijejo, da

being experienced is "real". I do not intend carnal knowledge in the Biblical sense although the two meanings are not unrelated.

Finally, does it matter whether a telerobotic site is real or not? Perhaps not to the majority of casual net surfers, but to those who spend enough time to care, to patiently interact with a purported telerobotic site, discovering the site to be a forgery can be as traumatic as the discovery by a museum curator of a forgery among one of the Rembrandts in the permanent collection.

In the year 2000, levitation is a relatively rare phenomenon. It interests magicians, artists, and philosophers. However, developments in magnetics and superconductors may bring levitation into the daily lives of all citizens. How will we adapt our epistemology to compensate?

Ken Goldberg is an artist and Associate Professor of Engineering at UC Berkeley, where he founded the Art, Technology, and Culture Colloquium. In 1995, he was named a National Science Foundation Presidential Faculty Fellow for his research in robotics. Goldberg's net art installations such as the Telegarden, Dislocation of Intimacy, Mori, and Ouija 2000 have appeared in number of festivals and shows including ICC Biennale in Tokyo, the Berkeley Art Museum, and the Whitney Biennial. Goldberg initiated a net art symposium at the SF Art Institute, curates the Net Work exhibition program at New Langton Arts, and is editor of The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet (MIT Press, 2000). For details and projects see: www.ken.goldberg.net

je vse skupaj le prevara. Tako odkritje je lahko precej travmatièno, podobno kot je za galerista travmatièno odkritje ponaredka med Rembrandtovimi slikami v stalni muzejski zbirki.

V letu 2000 je lebdenje sicer izjemno redek pojav, ki vzbuja zanimanje èarovnikov, umetnikov in filozofov, toda razvoj v magnetizmu in superprevodnikih ga lahko obudi v vsakdanje ivljenje vseh ljudi. Kako bomo v tem primeru prilagodili našo epistemologijo in jo nadgradili?

Ken Godberg je umetnik in izredni profesor strojništva na UC Berkley, kjer je ustanovil kolokvij Umetnost, tehnologija in kultura. Leta 1995 je dobil naziv èastnega èlana pri National Science Foundation za doseke na podroèju robotike. Goldbergove spletne instalacije, kot so Televrt (Telegarden), Motnja intime (Dislocation of Intimacy), Mori in Ouija 2000 je bilo moè videti na številnih festivalih in razstavah, vkljuèno z bienalom ICC v Tokiju, umetnostnim muzejem v Berkleyju in bienalom Whitney. Goldberg je ustanovitelj simpozija spletne umetnosti pri umetniškem inštitutu SF, kot kustos dela pri New Langton Arts kot vodja programa, poleg tega pa je tudi urednik The Robot in the Garden: Telerobotics in Telepistemology in the Age of the Internet (MIT press, 2000). Sicer pa je vse o njem na www.ken.goldberg.net.

AGAINST GRAVITROPISM[1]: ART AND THE JOYS OF LEVITATION

Eduardo Kac

In his seminal book Vision in Motion, published posthumously in 1947, Moholy-Nagy appears levitating a chisel with compressed air. The photograph is striking: we see Moholy-Nagy's profile and before him the object suspended in the air with no apparent means of support. In previous books, Moholy-Nagy articulated notions about the

Laszlo Moholy-Nagy levitating a chisel with compressed air, 1940. From Moholy-Nagy's book Vision in Motion, published in 1947/
Laszlo Moholy-Nagy uprizarja lebdenje dleta s pomoèjo stisnjenega zraka, 1940. Iz knjige Moholy-Nagy: Vid v gibanju (*Vision in Motion*), izdana 1947.

PROTI TE□NOTROPIZMU[1]: UMETNOST IN RADOSTI LEBDENJA

Eduardo Kac

V Moholy-Nagyjevi plodonosni knjigi Vid v gibanju (*Vision in Motion*), objavljeni posmrtno leta 1947, se pojavi Moholy-Nagy tako, da uprizori lebdenje dleta s pomoèjo stisnjenega zraka. Fotografija je osupljiva: vidimo namreè profil Moholy-Nagyja, pred katerim je v zraku obešen predmet, ne da bi bil kakorkoli pritrjen. V svojih predhodnih knjigah je Moholy-Nagy razlo□il svoja stališèa o evoluciji kiparskih oblik. Menil je, da virtualna prostornina - prostornina, ki jo navidezno ustvari pospešeno gibanje nekega predmeta - omogoèa nove mo□nosti nastanka kipa. Kot umetnik, ki se je podajal na različna podroèja, je razmišljal tudi o tem, da bi lahko bila nevtralizacija te□nosti v prihodnosti uporabno sredstvo pri oblikovanju.

Mad□arski konstruktivist ni bil osamljen pri tem stališèu. Uporaba magnetizma za obešenje oblik v prostoru je postala ključen element v inovativnem delu grškega kinetičnega umetnika Takisa. Leta 1959 je Takis uvedel estetiko magnetnega lebdenja s svojim elegantnim Télékipom. Kos sestoji iz treh manjših sto□èastih kovinskih delcev, ki so pritrjeni s tankimi □icami na tri □eblje. Ti trije sto□èasti delci so obešeni nad neenakomerno površino in lebdijo pred magnetom. To je samo zasnova celotnega dela, v katerem je ta èarovnik lebdenja raziskoval izrazno moè nevidnih sil.

Septembra 1959. leta je Luna do□ivela prvi obisk. Na njej je pristalo rusko vesoljsko plovilo Lunik 2. Kot prva sonda, ki je zadela Lunino površino, je Lunik 2 jasno pokazal, da je èlovekova premestitev v vesolje □e na obzorju. Takis je navdušen nad tem, kar je ponujala ideja, izvedel leta 1960 v Galeriji Iris Clert v Parizu dogodek z naslovom Nemogoèe, èlovek v vesolju (*L'Impossible, Un Homme Dans L'Espace*). Sinclair Belles se je ogrnil v "vesoljsko oblaèilo", ki ga je oblikoval Takis, s èelado na glavi in pritrjen na tla s kovinsko palico. Nato so ga "izstrelili" po galeriji na zašèitno mre□o.

evolution of sculptural form, suggesting that the virtual volume - volume created optically by the accelerated motion of an object - was a new possibility for sculpture. As an artist crossing many discipline boundaries, Moholy-Nagy also considered that in the future the neutralization of gravity could be a useful tool in design.

Although the Hungarian constructivist did not explore this notion himself, the use of magnetism to suspend forms in space became the key element in the innovative work of the Greek kinetic artist Takis. In 1959, Takis introduced the aesthetic of magnetic levitation with his elegant Télésculpture. The piece is composed of three small conical metal pieces, which are attached, through thin wires, to three nails. The three conical pieces are suspended above an irregular plane and levitate in front of a magnet. This was the seed of a complex body of work through which this magician of levitation has investigated the expressive power of invisible forces.

In September of 1959, the Moon was first visited by the Soviet spacecraft Lunik 2. As the first probe to impact the Moon, Lunik 2 made evident that human displacement in space was on the horizon. Fascinated by the implications of this idea, Takis realized an event in 1960 at the Iris Clert Gallery, in Paris, entitled *L'Impossible, Un Homme Dans L'Espace* (Impossible, A Man in Space). Donning a "space suit" designed by Takis, wearing a helmet, and attached to a metal rod connected to the floor, Sinclair Belles was "launched" across the gallery onto a safety net.

Just as Lucio Fontana's Spatialist movement made direct references to space - in 1951 he wrote "Man's real conquest of space is his detachment from the earth" - and Yves Klein's Leap into the Void (1960) was a photomontage alluding to the new condition of the body considered, rather concretely, in relation to the cosmos, the event orchestrated by Takis pointed to the unknown: the logic and the biologic that govern human existence on Earth will not readily apply to our life in space.

Tudi *spazialismo* Lucia Fontane se je direktno nanašal na vesolje (*spazio*). Leta 1951 je Fontana zapisal: "Èlovek je v resnici osvojil vesolje, ko se je loèil od zemlje." Fotomonta a Skok v praznino (*Leap into the Void*) Yvesa Kleina iz leta 1960 je precej konkretno merila na nove pogoje telesa v povezavi z vesoljem. Dogodek, ki si ga je omislil Takis, pa je nakazal pot v neznano: na Zemlji je èlovek podrejen logiki in biologiji, ki sta za bivanje v vesolju neuporabni.

Takis poseduje ognjevito in surovo moè, ki je povezana s primarno obdelavo eleza in jekla. Lebdeèi projekti Amerièana Thomasa Shannona pa so precej drugaèni. Od leta 1980 je Shannon ustvaril niz kipov iz materialov, kot so bron, zlato in marmor, pa tudi poslikan les, kjer vira magnetizma ni mogoèe zaznati. Njegovi kipi ne poudarjajo napetosti, ki izhaja iz privlaènosti dveh nasprotujoèih si polov. Ko razpostavi dva osnovna sestavna dela, podstavek in lebdeèi predmet, skulpture ustvarijo tiho ravnovesje in skladnost vidnega. Znanost in naravni pojavi so bogat vir Shannonovim vizualnim raziskavam. Lebdenje je v njegovem besednjaku preprosta formalna razèlenjenost, kjer se izkušnja magnetizma vzpostavlja s skladjem objektov, razdeljenih po parih.

Thomas Shannon: Past, Present, Future, 1986, stone, bronze, aluminum, gold, magnets, 135 x 80 x 40 cm, collection: Mandy Vahabzadeh, New York/
Thomas Shannon: Preteklost, sedanjost, prihodnost, 1986, kamen, bron, aluminij, zlato, magneti, 135 x 80 x 40 cm, iz zbirke: Mandy Vahabzadeh, New York

If Takis' work has a forceful and raw power that emanates from his unadorned handling of materials such as iron and steel, quite different are the levitation projects by American Thomas Shannon. Shannon has been creating since the early 1980s a series of sculptures based on materials such as bronze, gold, and marble, as well as painted wood, in which the source of magnetism is not visible. Rather than seeking to make evident the tension that results when opposite poles attract, Shannon's sculptures search for a sense of quiet equilibrium, resting on the visual harmony created by the presence of two basic components: the base and the floating element. Finding in science and natural phenomena a rich source for visual research, Shannon's vocabulary takes levitation into the realm of a reduced articulation of sculptural forms where pairing of objects structures the magnetic experience.

Many developments in 20th-century art led to a radical reduction in the use of physical matter to form sculptural volume and to support this volume in space. From Gabo's constructions (1919/20) to Fontana's perforations, from Moholy-Nagy kinetic works to Calder's mobiles, we have witnessed a movement to liberate modern sculpture from the constraints of enclosed and static form resting on the two-dimensional surface of the pedestal. Artists such as Takis and Shannon - and the Brazilian sculptor Mario Ramiro, who in 1986 created a self-regulating electromagnetic levitator entitled G0 (standing for *zero gravity*) - have given continuation to this search to release sculpture from *gravitropism*. [1]

The inevitable conclusion is that zero gravity is the next frontier. Artworks have been taken aboard the Space Shuttle since 1969, when The Moon Museum, a small ceramic tile with drawings by artists such as Robert Rauschenberg and Andy Warhol, was carried on Apollo 12. In 1989, Lowry Burgess flew objects on the Shuttle as part of a conceptual artwork entitled Boundless Cubic Lunar Aperture. However, none of these works were created specifically to investigate the new possibilities of art in true weightlessness.

Mnogo novih smeri, ki so se pojavile v umetnosti 20. stoletja, je do skrajnosti zmanjševalo uporabo fizièni snovi pri oblikovanju kiparskih del in njihovem umešèanju v prostor. Od Gabojevih konstrukcij (1919/20) do Fontanovih perforacij, od kinetièni del Moholy-Nagyja do Calderjevih mobilov smo prièe gibanju, ki naj bi osvobodilo moderno kiparstvo spon zaprtih in nepremièni oblik, postavljenih na dvodimenzionalni površini podstavka. Umetniki, kot so Takis, Shannon in brazilski kipar Mario Ramiro - slednji je leta 1986 ustvaril samonastavljiv elektromagnetni lebdilnik, ki ga je poimenoval G0 (kratica za *te nost 0*) - so vztrajali pri tovrstnih raziskavah in s tem osvobodili kipe *gravitropizma*[1].

Neizogibni zaključek je, da je nièta te nost naslednja meja. Umetniška dela so del interierja vesoljskih ladij od leta 1969, ko so na Apollo 12 dali Lunarni muzej, keramièno plošèico z risbami umetnikov, kot sta Robert Rauschenberg in Andy Warhol. Leta 1989 so predmeti Lowryja Burgessa leteli na vesoljskem plovilu kot del konceptualnega umetniškega dela z naslovom Brezmejna kockasta meseèeva odprtina. Vendar nobeno od teh del ni bilo narejeno posebej zato, da bi raziskovali nove mo nosti umetnosti v pravi breznte nosti.

Prvo takšno delo, postavljeno zunaj zemeljske oble, je Vesoljski plesalec Arthurja Woodsa, ameriškega umetnika, ki ivi v Švici. 1993 je ta konièasto ukrivljena oblika pristala na vesoljski postaji Mir. Vesoljski plesalec je razprl kulturne dimenzije vesoljske izkušnje. Video, ki je projekt zabele il, prikazuje dva ruska vesoljca, Alexandra Polischuka in Gennadija Mannakova, kako izvajata performans s kipom (obraèata se, dvigujeta, letita) na robu Mira. Tam so kip tudi pustili.

Vesoljski plesalec vzpostavlja nova teoretièna raziskovanja o prihodnosti umetnosti v drugaènih, nezemeljskih svetovih. Medtem ko bomo mi omejeni na modri planet, bodo lahko umetniki, ki išèejo nove mo nosti za odkrivanje lebdenja brez pomoèi magnetizma in elektromagnetizma, lahko preuèevali napredne tehnologije, ki so sedaj omejene samo na raziskovalne laboratorije.

The first work to do so outside the Earth is The Cosmic Dancer, by Arthur Woods, an American artist living in Switzerland. A sharp-angled form launched to the Mir Space Station in 1993, The Cosmic Dancer stressed the cultural dimension of space experience. The video that documents the project shows the two Russian cosmonauts Alexander Polischuk and Gennadi Mannakov performing (rotating, hovering, flying) with the sculpture in the confines of Mir, where the sculpture was left.

The Cosmic Dancer opens a new world of speculative inquiry into the future of art in worlds other than the Earth. While we remain confined to the blue planet, artists seeking to explore levitation beyond magnetism and electromagnetism can investigate advanced techniques presently only found in research laboratories.

A high-temperature electrostatic levitator allows the control of heating and levitation independently and, unlike an electromagnetic levitator, does not require that the floating object be a conductor of electric charge. Acoustic levitators enable the suspension of liquids in a state of equilibrium through acoustic radiation force. In addition, liquids can be suspended by a gas jet and stabilized by acoustic forces. Superconductor levitators enable objects to float above a magnet in fog of liquid nitrogen. With a laser levitator, it is possible to trap gas bubbles in water and create a condition of stable levitation by applying optical radiation pressure of the light beam horizontally and vertically.

At last, as levitation touches biology, molecular magnetism is predicated on the application of ordinary but very strong magnetic forces over a regular object. The forces are directed upwards and take advantage of the very weak magnetic response of the object present in the field, enabling the levitation of objects usually not regarded as capable of levitation (such as plastics) and living organisms (plants, insects, small animals - and conceivably humans, if the field could be made strong enough).

Temperaturno visoko odporni elektrostatièni lebdilnik dopušèa samostojni nadzor nad gretjem in lebdenjem ter, v nasprotju z elektromagnetnim lebdilnikom, lebdeèi predmet ni prevodnik elektrièenega naboja. Zvoèni lebdilniki omogoèajo obešenje tekoèin v stanje ravnovesja s pomoèjo zvoène radiacijske sile. Poleg tega lahko tekoèine lebdijo v zraku s pomoèjo curka plina in hkrati obmirujejo s pomoèjo zvoènih sil. Superprevodniški lebdilniki omogoèajo lebdenje predmeta nad magnetom v tekoèem dušiku ali dušiku v plinastem stanju. Z laserskim lebdilnikom je mogoèe ujeti plinaste mehurèke v vodi in ustvariti pogoje mirujoèega lebdenja z uporabo pritiska optièenega sevanja svetlega arka vodoravno in navpièno.

Konèno pa, ko se lebdenje dotakne biologije, lahko sklepamo o molekularnem magnetizmu pri uporabi obièajnih, a zelo moènih sil nad navadnimi predmeti. Sile so usmerjene navzgor in izkorišèajo zelo šibek magnetni odziv predmetov v tem polju ter tako omogoèajo lebdenje predmetov, ki obièajno ne zmorejo èesa takega (na primer plastika) in ivi organizmi (rastline, mrèes, majhne ivali - in tudi ljudje, èe je polje zadosti moèno).

Omenjene tehnike ponujajo be en pogled na to, kar bi bilo morda uresnièljivo, ko bo ivljenje na mednarodnih vesoljskih postajah nekaj popolnoma obièajnega, ko naselitev Lune ne bo veè znanstvena fantastika, ampak znanstveno dejstvo in ko bo vesoljski program premagal to, kar je po mnenju veèine najbolj vznemirljiv izziv: pristanek na Marsu.

Pathfinder on/na Mars(u)

These techniques offer a glimpse into what might be possible when life in the international space station becomes more common, when colonization of the Moon goes from science fiction to science fact, and when the space program overcomes what, in the public opinion, is its most exciting challenge: the Mars landing. The creation of new alloys and compounds in zero gravity and the prospect of interplanetary colonization suggest that space exploration is more than a metaphor in art. It is a physical and conceptual challenge that must be met.

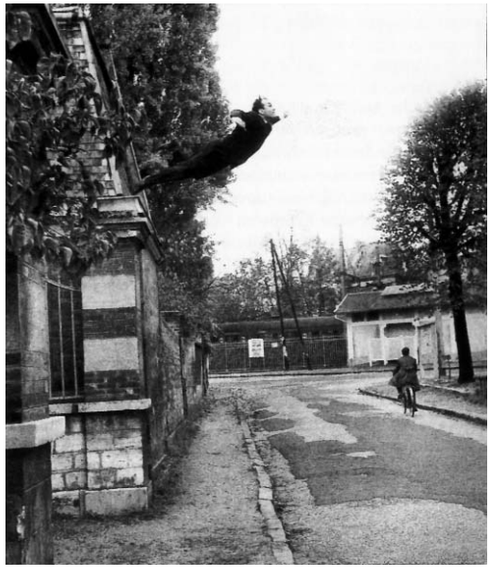
[1]*Geotropism* is a Botany term that designates growth in response to gravity. Roots have positive *geotropism* because they grow in the same direction of gravitational forces (i.e. down). Stems on the other hand have negative *geotropism*, as they grow against gravity (i.e. up). I use the term *gravitropism* in art to underscore the fact that gravity plays a fundamental role in the forms we are able to create on Earth, and that forms created in zero gravity to be experienced in the same environment might be radically different.

Eduardo Kac is an artist and writer. He is internationally known as a pioneer of telepresence art, which he has been creating since the mid eighties. A member of the editorial board of the journal Leonardo, Kac is currently developing transgenic art, art created with genetic engineering. Eduardo Kac is a fellow at the Centre for Advanced Inquiry in Interactive Arts (CAiiA) at the University of Wales, Newport, United Kingdom. He is an Assistant Professor of Art and Technology at the School of the Art Institute of Chicago. His work can be seen at: http://www.ekac.org

Ustvarjanje novih zlitin in zmesi brez teènosti in obeti medplanetarnega naseljevanja ponujajo razlago, da je odkrivanje vesolja veè kot samo metafora umetnosti. To je fizièni in konceptualni izziv, ki ga je treba sprejeti.

[1]*Geotropizem* je botanièni izraz, ki oznaèuje rast glede na teènost. Korenine imajo pozitivni *geotropizem*, ker rastejo v enaki smeri kot poteka delovanje teènosti, tj. navzdol. Stebla pa imajo negativni *geotropizem*, ker rastejo v nasprotni smeri, tj. navzgor. Avtor tega besedila uporablja izraz *gravitropizem* v umetnosti, da bi poudaril dejstvo, kako pomembno vlogo ima teènost pri oblikah, ki jih lahko oblikujemo na Zemlji, in da so lahko oblike, ki nastanejo v brezteènostnem prostoru in jih v tem prostoru tudi doèivimo, popolnoma drugaène od obièajnih.

Eduardo Kac je umetnik in pisatelj. V mednarodnih krogih je znan kot pionir umetnosti teleprisotnosti, ki jo ustvarja že od sredine osemdesetih let. Kot èlan uredništva revije Leonardo trenutno razvija transgensko umetnost, umetnost, ki nastaja s pomoèjo genetskega inženiringa. Eduardo Kac je tudi sodelavec Centra za napredne raziskave in interaktivno umetnost (CAiiA) Univerzi v Walesu v Newportu v Veliki Britaniji. Zaposlen je kot docent za umetnost in tehnologijo na èikaškem inštitutu. Njegova dela si lahko ogledate na http:// www.ekac.org.



Yves Klein: Leap into the Void, photomontage, 1960/
Yves Klein: Skok v praznino, fotomontaža, 1960

ZERO GRAVITY: A NEW DIMENSION FOR THE OBJECT

Mario Ramiro

Let us suppose that with the advancement of space stations, designed to orbit around the Earth, a well-known artist is invited to create artwork in a space with zero gravity. How would a sculptor react when first exposing her objects to the high-tech and extremely minimal interior of an orbital station? Would she consider fastening her work onto the spaceship structure or would she be more concerned with installing floating video beamers in the orbiting space?

Nowadays this type of doubt no longer seems justifiable. At the turn of the century, a large number of artists have been setting aside their cultural specia-lizations to become increasingly involved with intermedia projects, thus reflecting their growing need for flexibility within the domains of culture, their true work field. The construction of orbital stations are still widely associated to sci-fi film and literature, whereas transgenic engineering, for example, continually attracts and alarms the public opinion at the same time that the media assign to it a vanguard status. Naturally, news such as the transfusion of polar bear genes to a plant - with the purpose to increase the plant's resistance to frost - provokes in us a mixture of dread and "artistic" fascination. Even so, the extremely costly and hardware-based spatial engineering remains inspiring in its silent progress through great darkness.

THE GREAT VOID

The possibility of launching objects in the orbit, totally free from the gravitational attraction of the Earth, opens up a huge new field for research on the new dimensions of an object. Following the example of the industry and intelligence agencies, the artists of this new century will be able to conceive new things such as metal alloys cast in zero gravity environments for the production of structures destined for assembly in interplanetary spacecraft.

NIÈTA TE□NOST: NOVA RAZSE□NOST PREDMETA

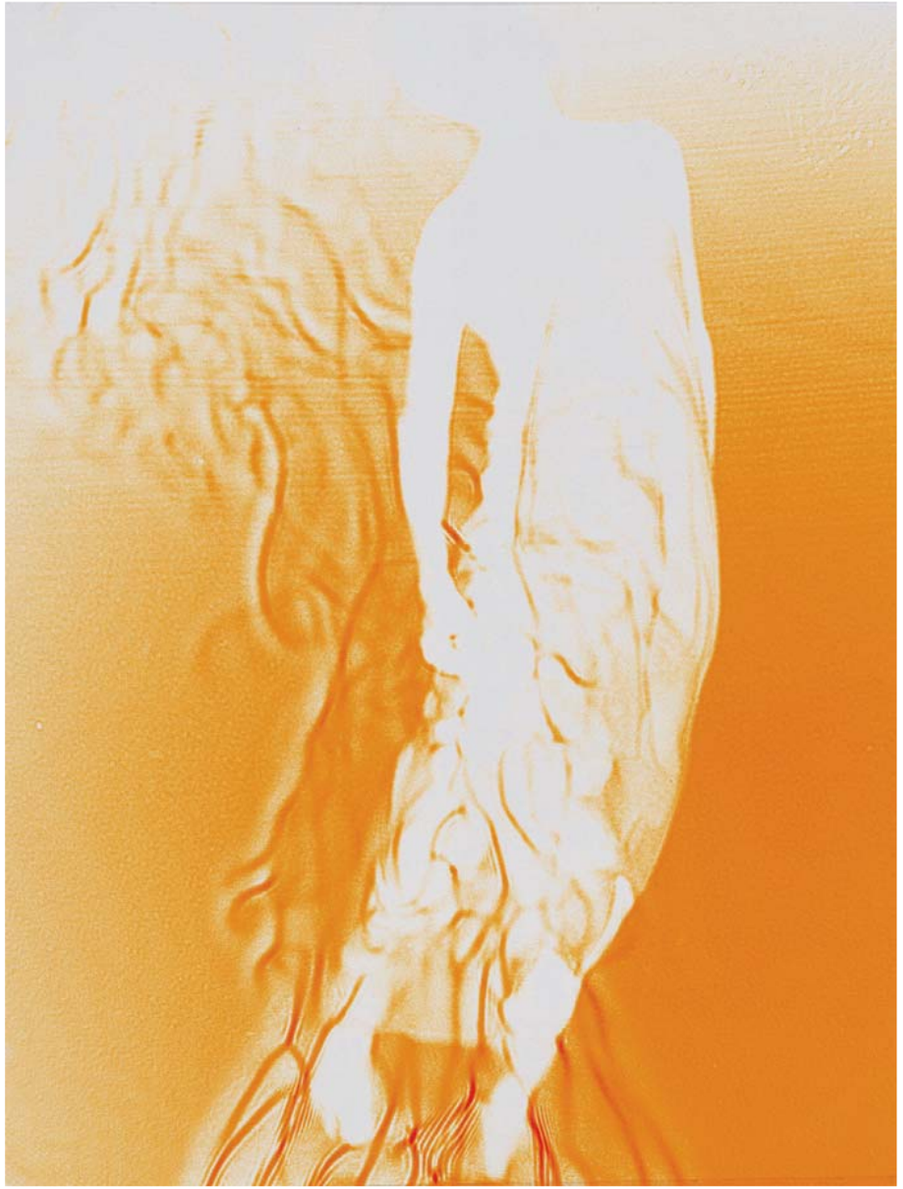
Mario Ramiro

Vesoljske postaje, ki so narejene za kro□enje okrog Zemlje, so se razvile do te stopnje, da bi lahko na primer umetnico povabili, naj v vesoljskem brezte□nostnem prostoru postavi umetniško delo. Kako bi se odzvala kiparka, ki bi prviè razstavljala svoje objekte v visokotehnološkem in izjemno majhnem interierju orbitalne postaje? Ali bi v tem primeru pritrdila svoje delo na konstrukcijo vesoljske ladje ali bi v kro□eèem prostoru raje namestila plavajoèe video topove?

Danes bi to zadrego te□ko zagovarjali. Ob prelomu stoletja se je veliko umetnikov odreklo specializacijam na podroèju kulture zato, da bi se lahko v veèji meri posvetili intermedijskim projektom. Tako opa□amo vedno veèjo potrebo po prilagodljivosti kulturnega podroèja kot delovnega izhodišèa. Zgradba orbitalnih postaj je še vedno tesno povezana z znanstveno-fantastiènimi filmi in literaturo, medtem ko na primer transgenski in□eniring ves èas privlaèi in vznemirja javno mnenje, hkrati pa mu mediji pripisujejo vodilni polo□aj. Seveda novice, kot so prenešanje genov polarnih medvedov rastlinam - da bi bile rastline odpornejše na mraz, vzbujajo v nas mešanico groze in “umetniškega” navdušenja. Toda tudi vesoljski in□eniring, ki je izjemno drag in temelji na strojni opremi, ostaja poln navdiha v svojem tihem napredovanju skozi veliko temo.

VELIKA PRAZNINA

Mo□nost izstrelitve predmetov v orbito, neodvisno od Zemljine privlaènosti, odpira velikansko polje raziskav o novih razse□nostih predmeta. Èe sledimo zgledu industrije in obvešèevalnih slu□b, bodo umetniki novega stoletja sposobni ustvariti nove reèi, kot so kovinske zlitine, uporabne v brezte□nostnih okoljih za izdelavo sestavljivih konstrukcij v medplanetarnih vesoljskih ladjah.



Mario Ramiro: The Rise, color lasergramm, 120 x 110 cm, Cologne, 1996, photo M. Ramiro/
Mario Ramiro: Dvig, barvni lasergram, 120 x 110 cm, Köln, 1996, foto M. Ramiro

Mario Ramiro: The Fall, color lasergramm, 120 x 100 cm, Cologne, 1996, photo M. Ramiro/
Mario Ramiro: Padec, barvni lasergram, 120 x 100 cm, Köln, 1996, foto M. Ramiro

Tak podvig bo zahteval od umetnikov, da bodo premagali razdvojenost koncepta snovi (*strojna oprema*) in informacije (*programska oprema*), ki ju dojemamo kot razpoznavna sestavna dela. V 21. stoletju bo ustvarjalni duh raziskoval nove naèine za povezovanje oblike in vsebine nekega predmeta. Nadalje se ponovno izpostavlja globina pomenjenja barv pri ugotavljanju istovetnosti brezte nostnih prostorov. Takole navidezno brezte no, èloveško telo izgubi smisel za smeri, ki oznaèujejo relativne prostorske polo aje, ko so *zgoraj*, *spodaj*, *desno* in *levo*. Z gotovostjo lahko sklepamo, da se je po zgledu analize dela Kretnje (*Gestures*) filozofa Vilema Flusserja ustvarila popolnoma nova skladnja kretenj v razvoju odnosa med individualnim in (*funkcionalnim*-) sistemom. V skladu z osebno izkušnjo številnih vesoljcev je v brezte nosti izginila celo predstava o istovetnosti s samim seboj kot telesom z biomaso (te o) in duhom. Za mnoge popotnike v oddaljenem vesolju ni istovetenje s samim seboj niè drugega kot istovetenje z mislijo ("Mislim, torej sem").

SANJE O LETENJU

Èlovek se je ves èas sreèeval z mnogimi ovirami, ko je poskušal celovito izkusiti tridimenzionalnost. Flusser v svoji knjigi Naravni:duh

Such an enterprise will demand that artists overcome the dichotomous concepts of matter (*hardware*) and information (*software*) viewed as distinct elements. A new way to integrate the object's design and content shall rule the constructive spirit throughout the 21st century. Furthermore, a profound meaning is reinstated to colours in the identification of spaces with zero gravity. Thus apparently weightless, the human body loses the sense of orientation that designates relative spatial positions such as *above*, *below*, *right*, and *left*. Most certainly, we can assume that in the wake of philosopher Vilem Flusser's analysis of Gestures, a whole new gestural syntax is being instated in the development of the individual (*functionary*-)apparatus relationship. According to the personal experience of numerous astronauts, even the notion of self-identity as a body with biomass (weight) and mind is dissipated in zero gravity. To many travellers in outer space, self-identity is but an identity of thought ("I think, therefore I am").

THE DREAM OF FLYING

Man has always met huge obstacles when trying to experience three-dimensionality in full. In his book *Natural:mente* (Natural:mind), Flusser remarks that the old dream of *flying like a bird* nurtured by our ancestors were equivalent to "seeing the world from above and overcome unconquerable obstacles /.../ However, the dream of *flying like a bird* is charged with another desire that our ancestors sensed but not in a clear and distinctly manner: to surpassing two-dimensionality. By and large, the fact that we are held prisoners of two-dimensionality is not acknowledged. We have the illusion that our movements are carried out three-dimensionally in space. Actually, however, our earthling status dooms us to the plane (the surface of the Earth). Only our hands allow us to move into the third dimension /.../ To fly like a bird is to utilize the entire body as if it were a hand, to move freely in all directions in space."

Mario Ramiro: Standing portray, zinc, 100 x 20 cm, Sao Paulo, 1989, photo Eduardo Brandao/
Mario Ramiro: Stojeèi portret, cink, 100 x 20 cm, Sao Paulo, 1989, foto Eduardo Brandao

(Natural:mente) omenja, da so stare sanje o tem, da bi *leteli kot ptièi*, ki izvirajo od naših prednikov, enakovredne "videnju sveta od zgoraj navzdol in premagovanju nepremagljivih ovir /.../. Kljub vsemu so sanje o letenju pre□ete še z eno □eljo, ki so jo naši predniki zaznali, toda nejasno in nedoloèno: preseganje dvodimenzionalnosti. Dejstva, da smo ujetniki dvodimenzionalnosti, si še zdaleè ne priznamo. □ivimo namreè v utvarah, da se naši gibi dogajajo v tridimenzionalnem prostoru. V resnici pa nas je naš na Zemljo prikovan polo□aj obsodil na ploskev (Zemljino površino). Samo naše roke nam dopušèajo gibanje v tretji dimenziji /.../. Leteti kot ptiè pomeni uporabiti celo telo, kot da bi bilo roka, in se gibati svobodno v vse smeri po prostoru."

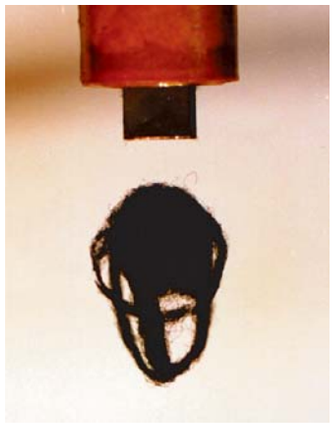
TE□NOST IN UMETNOST

Vesoljci izkušajo dolgotrajne vaje v brezte□nostnem prostoru, da bi osvojili nove vire za usmerjanje po prostoru in se nauèili, kako celostno upravljati svoja telesa. Telesna aktivnost v brezte□nostnem prostoru je zelo pomembna za ohranitev naše kostne zasnove, kot jo poznamo pod vplivom Zemljine te□nosti.

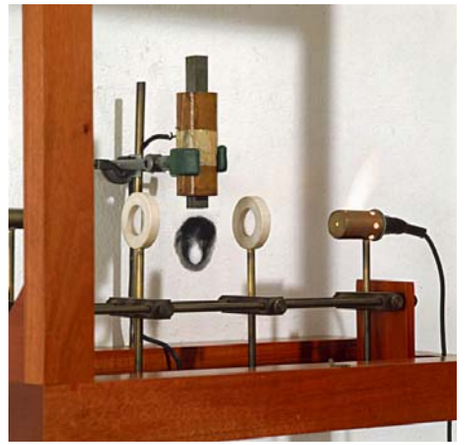
GRAVITY AND ART

Hence, astronauts undergo lengthy training in zero gravity, to develop new references for orientation in space and to learn how to have full control of their bodies. Physical activity in zero gravity has critical importance for the maintenance of our bone framework, as we know it under the Earth's gravitational attraction. In the absence of muscle exercise, the human body tends to become a ball of flesh filled with water in the lightness of the void. Besides bringing up the need to control the body, spacecraft travel also seems to strengthen the notion of planetary unit. Seen against the star-studded black background, the Earth appears to be a living organism; this appearance is probably what boosts the spirit of international cooperation programs for the exploration of outer space.

Under gravity zero, those artists still interested in investigating occurrences of material density will have a new and unexplored artistic medium available to them. This holds true despite all forewarnings about the disappearance of the object (*ob-iectum*) in the era of dematerialization - a fact that might result even in the disappearance of the human role as subject (*sub-iectum*) of history. Far away from gravity, we will be able to design and assemble gigantic frameworks without any concern for the classical notions of above and below.



Mario Ramiro: The Zero Gravity (detail) photo: M.Ramiro/ Mario Ramiro: Nièta telnost detajl) - foto: Mario Ramiro



Mario Ramiro: The Zero Gravity, wood, brass, glass, electromagnet, electronic components - 1. version - 81 x 81 x 81 cm, São Paulo, 1986, photo M. Ramiro/
Mario Ramiro: Nièta telnost, les, bron, steklo, elektromagnet, elektronske sestavine - 1. verzija - 81 x 81 x 81 cm, São Paulo, 1986, foto M. Ramiro

Èe èlovek v lahkosti praznine ne izvaja mišiènih vaj, njegovo telo poèasi postaja krogla mesa, napolnjena z vodo. Potovanja z vesoljskimi plovili poleg potrebe po nadzoru nad telesom navidez krepijo predstavo o planetu kot enoti. Ko opazujemo Zemljo na temni podlagi, posuti z zvezdami, se nam zdi kot liv organizem. Ta podoba najbr krepi sodelovalni duh mednarodnih programov za odkrivanje vesolja.

V brezte nosti bodo imeli umetniki, ki jih še vedno zanima raziskovanje pojavov snovne gostote, na voljo nov in še neodkrit umetniški medij. Vse to dri kljub napovedim, da bo predmet (*ob-iectum*) v obdobju dematerializacije popolnoma izginil - dejstvo, ki bi morda povzroèilo brisanje èlovekove vloge kot osebka (*sub-iectum*) v zgodovini. Daleè proè od te nosti bomo lahko oblikovali in sestavljali velikanske konstrukcije, ne da bi pri tem skrbeli za ustaljene predstave o tem, kar je zgoraj ali spodaj. Tako se bomo graditelji osvobodili vseh postopkov pogojevanja in bo lahko materija prevzela najbolj nenavadne in domišljijske oblike. Morda bomo potem le dosegli stare sanje avantgarde 20. stoletja: osvoboditev kipa od podstavka. V trenutku, ko se bo kip spremenil v pravi tridimenzionalni predmet, loèen od ploskve, bo pridobil nove razse nosti, ki izhajajo iz novih strukturalnih razmerij. Brazilski umetnik Eduardo Kac je v enem od svojih zgodnjih besedil iz leta 1980 zapisal, da mora "umetnik, ki

Likewise, the forms of these frameworks will be freed from conditioning processes, thus allowing mass to assume the most extraordinary and imaginative configurations. Perhaps then we will be able to fully achieve the old dream of the 20th-century vanguards: to free sculpture from its base. The moment it becomes a truly three-dimensional object detached from the plane, sculpture will acquire new dimensions sprung from new structural relations. In one of his early texts of the 1980s, Brazilian artist Eduardo Kac wrote that "an artist who designs a cosmic sculpture or poem to place them in space must use in his calculations the classic law of universal gravitation (the force of attraction between two bodies depends on the product of the two bodies' masses divided by the square of the distance between them). The formula determines the centrifugal force that the sculpture or poem will create, given that this force produced by the revolution of satellites in space counterbalance their weight and keeps them in orbit."

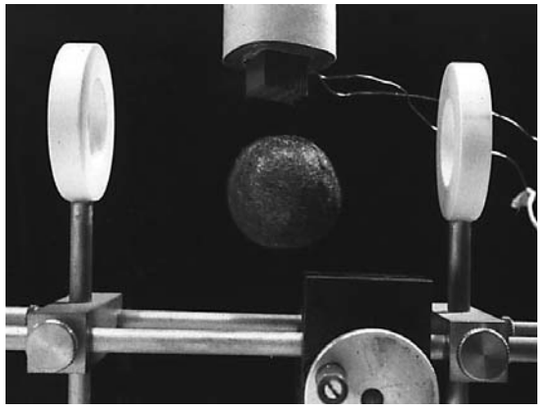
On the ground, despite the numerous operations to which the aesthetics of three-dimensionality has been subjected in the hands of artists, the object remained for a long time confined to its existence on a plane. For example, in the first half of the 20th century, the remarkable U.S. artist Alexander Calder transferred to the ceiling the problematic of the support (the plane base) of his sculptures: he determined a point on the ceiling from which he suspended his mobiles, like Russian artist Rodchenko had done in the 1920s.

With the scientific and technological advances of telecommunication systems, soon the dream of teleportation of three-dimensional objects might become a reality, thus allowing artists to operate the programmed dematerialization and teleportation of their objects and their "random" re-materialization (of course) as proposed in the original version of the feature film The Fly.

In the meantime the emphasis on the current use of technology in art is focused on telematic systems that basically designate our era - one

oblikuje vesoljski kip ali pesem zato, da bi ju namestil v vesolju, v svojih izraèunih uporabiti tradicionalne zakone splošne te□nosti (sila privlaènosti med dvema telesoma je odvisna od zmno□ka snovi dveh teles deljeno z razdaljo med njima na kvadrat). Formula doloèa sredobe□no silo, ki bi jo ustvarila kip ali pesem pod pogojem, da ta sila, pogojena s kro□nim gibanjem satelitov v vesolju, izenaèuje njuno te□o in ju ohranja v orbiti."

Kljub številnim umetniškim estetskim posegom v tridimenzionalnost, je na Zemlji predmet ostal omejen na svoj obstoj na ploskvi. V prvi polovici 20. stoletja je na primer pomembni ameriški umetnik Alexander Calder prenesel problem podpore (podstavka) svojih kipov na strop. Doloèil je toèko na stropu, s katere je obesil svoje mobile, tako kot je to storil ruski umetnik Rodchenko leta 1920.



Mario Ramiro: Zero Gravity (detail), photo Carlos Gordon / Mario Ramiro: Nièta te□nost (detajl), foto Carlos Gordon

Z znanstvenimi in tehnološkimi prednostmi telekomunikacijskih sistemov bodo sanje o prenosu tridimenzionalnih predmetov na daljavo kmalu postale resniènost. Umetnikom bodo omogoèile opravljanje programirane dematerializacije, teleportacije njihovih predmetov in njihovo "nakljuènostno" ponovno materializacijo (jasno), kot predlaga izvirna razlièica filma Muha.

Današnja uporabe tehnologije v umetnosti te□i k sistemom za upravljanje na daljavo, ki pravzaprav oznaèujejo naš vek - obdobje, kjer umetnost vse bolj postaja informacijski, nesnovni element. Vilém

in which art becomes more and more an informational element, devoid of materiality. Vilém Flusser also wrote: "Pre-industrial man lived surrounded by animated beings: cattle, plants, peasants, craftsmen. The industrial revolution has replaced these beings with objects: machines, goods, working class, capital, market. Hence our *objectivity* is a recent fact." (in *Do Inobjeto*).

An analogy with current spacecraft serves to illustrate this dematerialization of the artwork. At its launching from a launch pad, a rocket or space vehicle is an enormous accumulation of material and fuel that is necessary for it to surmount the force of gravitational attraction. Then, as this craft climbs to higher altitude and gains acceleration, it undergoes a *dematerialization* process that reduces it to satellite form. Once placed in orbit, the role of this satellite will be to establish communications links between points on earth, sea, and air. This is a new status that art has assumed at the threshold of the new century: the reduction to the least possible amount of material capable to convey an ever-increasing amount of information.

BEYOND GRAVITY

In the book The first Men in Moon by H. G. Wells, the character Dr. Cavor discovers a substance he named *cavorite*, that was capable to offset gravitational effects. With this substance, Dr. Cavor built the spaceship that took him to the moon. Purportedly this substance had negative mass, which made it "fall" up rather than down. This fiction was confirmed years later by a British university's research lab that had received a few samples of lunar rock from Cape Canaveral in the late 1970s. One day a researcher unintentionally knocked one of these greenish samples closer to a glass tube containing mercury on the lab counter. He noticed that the level of mercury immediately rose in the tube. Then he drew the rock away and the column of mercury lowered, thus clearly evincing the effect of gravity. Somehow, this "lunatic" effect would have been useful to legendary Atlas, condemned by Zeus to sup-

Flusser je med drugim zapisal: "Predindustrijski èlovek je ivel obkroen z animiranimi bitji: ivino, rastlinjem, kmeti, obrtniki. Industrijska revolucija je nadomestila ta bitja s predmeti: stroji, dobrinami, delavskim razredom, dobièkom, tršièem. Tako je naša *stvarnost* vedno sodobno dejstvo." (iz dela *Do Inobjeto*).

Kot ponazoritev za dematerializacijo umetniškega dela slui analogija s sodobnim vesoljskim plovilom. Ob izstrelitvi z zemeljske površine je raketa ali vesoljsko vozilo velikanski kup snovi in goriva, ki je potreben za premagovanje teinostne sile. Potem ko vozilo pridobi na višini in pospešku, je podvreno poteku *dematerializacije*, ki ga spremeni v obliko satelita. Ko se znajde v orbiti, je naloga satelita vzpostavitev povezave med posameznimi toèkami na zemlji, morju in zraku. To je nov poloaj, ki ga je umetnost zavzela na pragu novega stoletja: zmanjšanje snovnega na najmanjšo mono kolièino, ki še zmore prenesti narašèajoèo kolièino informacij.

ONSTRAN TEINOSTI

V romanu Prvi ljudje na Mesecu, napisal ga je H. G. Wells, junak dr. Cavor odkrije snov, ki jo poimenuje *cavorit*. *Cavorit* lahko ubei teinostni sili. Dr. Cavor je s to snovjo zgradil vesoljsko plovilo, ki ga je odpeljalo na Luno. Ker je imela snov negativno maso, je "padala" navzgor in ne navzdol. Domneva iz romana se je leta kasneje potrdila kot uresnièljiva, potrdili pa so jo v raziskovalnem laboratoriju angleške univerze, kjer so dobili nekaj primerkov kamnine z Lune, s Cape Canaverala v poznih sedemdesetih. Nekega dne je raziskovalec na la-boratorijskem pultu nehote potisnil enega od zelenkastih vzorcev proti stekleni epruveti z ivim srebrom. Opazil je, da je raven ivega srebra nenadoma narasla. Potem je kamnino umaknil in raven ivega sreba v epruveti se je zniala, kar je jasno nakazovalo na uèinek teinosti. Na nek naèin bi bil ta "lunatièen" uèinek zelo uporaben za bajeslovnega Atlasa, ki ga je Zevs obsodil na to, da je moral podpirati nebesa na ramenih celo veènost. Skozi to nadèloveško opravilo se zrcali

port the heavens upon his shoulders throughout eternity. Such superhuman task reflects first and foremost the existence of considerable weight. However, we have learned in physics that a body's weight depends on the existence of another body that attracts it. According to Dr. Carl du Prel, our language masks this attraction by "ascribing to a rock the source of the weight that is extrinsic to it." Finally, the word *weight* designates a relation between two bodies rather than the nature of either body. Arthur Clark wrote, "We know so little about gravitation that we are not even sure whether it propagates in waves at a definite speed - like radio or light waves - or whether it is *granted* /.../ Force of gravity seems to be completely different from other forces, which are generated in diverse manners and freely convertible. Actually, most contemporary technology is based on these conversions: from heat to electric power, from electric power to light, and so forth. However, there is no way we can generate gravity." The quest for the control of force of gravity is still viewed with scepticism in certain scientific environments. Dreams such as those of a gravitater seem to occur more often in sci-fi film, comics, and literature than in the reality, propelled by combustion engines.

SPACE AND TRANSCENDENCE

Even so, the on-going endeavours and research projects aimed at the exploration of outer space demonstrate that not only in the U.S.A. but also in Canada, Japan, Russia, and Europe scientists have been pushing for the expansion of interstellar frontiers. This exertion to surpass the Earth's borders and reach out to other planetary systems seemingly reflects an awareness of the inevitable and predictable end of our solar system. Whereas as individuals we are guided throughout our lifetime, by religion and by philosophy, to accept our inexorable destiny, as a species we regard as simply unacceptable the assumption that all life forms will be wiped out from our planet many million years in the future, when the gradually reduced solar energy is finally extinguished. This perspective of an *icy death* seems to drive human

v prvi vrsti obstoj znatne te□e. Toda pri fiziki smo se uèili, da je te□a telesa odvisna od te□e drugega telesa, ki ga privlaèi. Po besedah dr. Carla du Prela naš jezik zakriva to privlaènost tako, da "pripisuje kamnini izvor te□e, ki je zanjo popolnoma postranskega pomena". Konèno pa beseda *te□a* oznaèuje bolj odnos med dvema telesoma kot naravo katerega od teh teles. Arthur Clarke je zapisal: "Tako malo vemo o te□nosti, da nismo preprièani niti, ali se širi v valovih pri doloèeni hitrosti - tako kot radij-ski valovi ali svetloba - ali je preprosto *dana* /.../ Te□nostna sila se zdi popolnoma drugaèna od vseh ostalih sil, ki jih lahko pridobivamo na razliène naèine in so povsem spremenljive: od toplote do elektrike, od elektrike do svetlobe in tako naprej. Te□nosti pa nikakor ne moremo dobiti na ta naèin." Raziskave, kako bi lahko obvladali te□nostno silo, so v nekaterih znanstvenih okoljih še vedno obdane z dvomi. Te□nostna naprava, ki jo poganjajo motorji z notranjim izgorevanjem, so sanje, ki se pogosteje pojavljajo v znanstveno-fantastièni filmih, stripih in literaturi kot v naši resniènosti,.

VESOLJE IN TRANSCENDENCA

Kljub temu vztrajni napori in raziskovalni projekti, ki so usmerjeni v raziskovanje vesolja, dokazujejo, da ne samo v ZDA, temveè tudi v Kanadi, na Japonskem, v Rusiji in Evropi znanstveniki vendarle te□ijo k širitvi medzvezdnih meja. Trud, da bi ube□ali zemeljskim mejam in dosegli druge planetarne sisteme, je odsev zavesti o neizogibnem in predvidljivem koncu našega sonènega sistema. Medtem ko nas kot posameznike vodita skozi □ivljenje religija in filozofija, da bi sprejeli svojo neizogibno usodo, se nam kot vrsti zdi popolnoma nesprejemljivo, da bodo vse oblike □ivljenja èez nekaj mili-jonov let, ko bo sonèna energija popolnoma ugasnila, izbrisane z našega planeta. Ta vizija *ledene smrti* èloveško kulturo sili k iskanju drugih bivalnih prostorov v vesolju. Kdo ve, ali ne bo morda strateški razvoj digitalne in elektronske kulture, ki zmore ogromne kolièine izraèunov, pravzaprav nadèloveška strategija. Morda je na našem planetu celo izdelana zaradi zavesti o smrti velike zvezde (Sonca) v bli□nji

culture to seek other places in the universe. Who knows, would not this strategic development of a digital and electronic culture capable of handling massive calculations perhaps be a superhuman strategy? Perhaps it is designed by this planet as result of its awareness of the death of the giant star (the Sun) in a relatively near future. From this viewpoint, this strategy seems to be the solution scientists have devised for the future teleporting of Earth inhabitants and their vital elements (water, minerals, proteins) beyond our solar system. In this case, are we not merely *neurons* deceived by our perception of identity, working toward this great planetary intelligence so that life, the way we know it, can outlast the end of our Sun?

This text was written originally for the exhibition The turn of the 20th century held at Pinacoteca do Estado in São Paulo, Brazil, in 1986. It was rewritten recently in the light of news articles on the construction of orbital platforms that will be revolving around the Earth early in the 21st century.
(Translated from Portugese by Isabel Murat Burbridge)

Mario Ramiro, (born in Taubaté - São Paulo, Brasil), started working with public spaces in São Paulo, modifying the architectural environment in collaborative projects Urban Interventions. These works led to experimentation with photocopiers and later to work with telecommunications - radio, telephones, television, answering machines, videotext, slow-scan TV and fax. Since the early 1980s he has created levitational sculptures (three-dimensional forms literally suspended in the air) and thermal sculptures with invisible volumes. His continuous exploration of thermal space has taken new forms through the use of Schlieren photography, a laser imaging technique that results in photographs that reveal invisible phenomena occurring in the atmosphere around warm(ed) bodies, evoking the power of life and death forces.
The most recent article about the artist has been published by the american magazine Leonardo (MIT press) which can also be available on internet: http://www.autopsi.de

prihodnosti. S tega stališèa se zdi strategija, ki so jo izdelali znanstveniki za prihodnjo teleportacijo Zemljanov in najpomembnejših sestavnih delov (voda, minerali, beljakovine) onstran našega sonènega sistema, edina mo na rešitev. V tem primeru nismo samo *nevroni*, zaslepljeni z dojemanjem lastne identitete in usmerjeni k veliki planetarni inteligenci. Ali lahko ivljenje, kot ga poznamo, pre ivi tudi konec našega Sonca?

Besedilo je bilo prvotno napisano za razstavo Prelom 20. stoletja v Pinacoteci do Estado v São Paulu v Braziliji leta 1986. Pred èasom je bilo popravljeno glede na novosti s podroèja orbitalnih platform, ki bodo kro ile okoli Zemlje v 21. stoletju.

Mario Ramiro (rojen v Taubatéju - São Paulo, Brazilija) je zaèel delati v javnih prostorih v São Paulu in spreminjati arhitekturno okolje v sodelovalnih projektih Urbanistièni posegi. Ta dela so vodila v poskuse s fotokopirnimi stroji in pozneje z razliènimi vrstami telekomunikacije - radijem, telefoni, televizijo, telefonskimi tajnicami, video besedilom in faksom. e od zgodnjih osemdesetih let naprej je ustvarjal lebdilne kipe (tridimenzionalne oblike, ki dobesedno visijo v zraku) in toplotne kipe z nevidno vsebino. Njegovo nenehno raziskovanje toplotnega prostora je prevzelo nove oblike, le-te pa so vidne na fotografijah, ki odkrivajo nevidne naravne pojave, ki se pojavljajo v ozraèju okrog toplotnih teles in s tem izvabljajo ivljenjsko moè ter sile smrti.
Najnovejši èlanek o umetniku je bil objavljen v ameriški reviji Leonardo (zalo ba MIT), ki je na voljo tudi na internetu: http://www.autopsi.de

THE MAGNETIC RESONATOR, FROM LEVITATION TO TELEPORTATION

Anonymous Writer

The magnetic resonator can be used for the following experiment: the astral projection, invisibility, the spiritual time machine, the physical time machine, inter-dimensional journeys and teleportation.

Our disconnected conception of time - space, matter - energy has to change. George Van Tassel conveyed a hypothesis about electricity, comprising four dimensions:
1. the motion of an electrical current in both directions
2. the magnetic field, which builds up
3. static electricity, which is compounded by the first two dimensions
4. time.

Time and space are not disconnected; rather, they present the continuum, which is being fulfilled by an all-permeative consciousness. The electrical field, having been caused by the flow of electricity, induces the magnetic field at a right angle, while each of these fields represents a separate level in space. The third level is gravitation, which can be acquired by switching on the electromagnetic generator, further producing pulsating magnetic waves on the basis of resonance.

The American navy discovered the concept while implementing a secret experiment called Philadelphia, completed in 1943. The aim of the experiment was to test the effect of the strong magnetic field in radar camouflage. Pulsating and non-pulsating magnetic generators were used to produce the strong magnetic field. A few moments prior to the experiment, a very dense green light began to slide down over the ship and the crew slowly disappeared, or they were in a state of suspended animation, as the report claims to be a fact. Then the whole ship disappeared. The result of the experiment was the effec-

MAGNETNI RESONATOR; OD LEBDENJA DO TELEPORTACIJE

Neznani pisec

Magnetni resonator lahko uporabljamo za naslednje eksperimente: astralno projekcijo, nevidnost, spiritualni èasovni stroj, fizièni èasovni stroj, interdimenzionalna potovanja ter teleportacijo.

Loèeno dojemanje koncepta èas-prostor in materija-energija se mora spremeniti. George Van Tassel je postavil hipotezo, ki pravi, da elektrika vsebuje štiri dimenzije:
1. gibanje elektrièenega toka v obeh smereh,
2. magnetno polje, ki se pri tem ustvarja,
3. statièna elektrika, ki jo ustvarjata prvi dve dimenziji,
4. èas.

Èas in prostor nista loèena, ampak predstavljata kontinuum, ki ga zapolnjuje vsepre emajoèa zavest. Elektrièno polje, ustvarjeno s pretokom elektrike, inducira magnetno polje pod pravim kotom, vsako od teh polj pa predstavlja tudi posamezno raven v prostoru. Tretja raven je gravitacija, ki jo je mogoèe dobiti s priklopom elektromagnetnega generatorja, ki na osnovi resonance ustvarja utripajoèe magnetne valove.

Koncept je postavila ameriška mornarica s svojim tajnim eksperimentom Philadelphia, ki ga je izvedla leta 1943. Njihov cilj je bilo testiranje uèinka moènega magnetnega polja pri radarski kamufla i. Za ustvarjanje moènega magnetnega polja so uporabili utripajoèe in neutripajoèe magnetne generatorje. Nekaj trenutkov po prièetku poskusa se je nad ladjo prièela spušèati zelo gosta zelena svetloba, posadka pa je poèasi izginila, oziroma kot je bilo navedeno v poroèilu, bila je v stanju *navidezne smrti*. Nato je izginila tudi sama ladja. Rezultat eksperimenta je bilo nevidno polje sferiène oblike, pri èemer je bila na morju vidna le depresija, ne pa tudi ladja.

tive invisible field in spherical form; only a depression was visible at sea, and not the ship itself.

If implications from Einstein's theory of relativity were developed, linking the gravitational field to the magnetic one and to the continuum of space - time, then it could be deduced that the magnetic field, which is strong enough, is what causes dimensions to change and create the effect of invisibility of people and objects. This might be the answer to riddles such as the UFO and Bermuda triangle manifest.

According to the theory developed by scientist Ivan Sanderson, the planet Earth functions as a huge electromagnetic generator, which is composed of so-called webknots, in which certain anomalies evolve. The webknots produce magnetic whirls in which passages reside, enabling the transition from one dimension to another. Other unknown phenomena, beside materialisation and dematerialisation, also reside in these knots, such as time fissures, magnetic anomalies etc.

Recent scientific research proved that the universe consists of miniature positive and negative energetic charges. Atoms develop among various vibratory modules (pulsating, spirals, waves, forces), while at the point where inter-reaction develops, matter is produced.

The human mind can influence matter by alternating molecular modules; however, this is probable only when a human being resides in the so-called reverent state (the sense of deep respect, admiration), or at times when thought activity is positive (joy, comfort). Only in such a state can the vibratory composition between a Man and the Creator occur. Yet, if we reside in the non-reverent state of consciousness, our link to the Creator diminishes, leading to a blockade of will. The feeling of impatience is typical of the non-reverent state of consciousness, leading to frustrations and disappointment. If love prevails, we can sharpen our concentration, which results in the feeling of inner fulfilment and success. However, negative experience helps us

È e bi razvili implikacije iz Einsteinove relativnostne teorije, ki povezuje gravitacijsko polje z magnetom ter kontinuumom prostor-èas, bi lahko sklepali, da lahko dovolj moèno magnetno polje povzroèi spremembo dimenzij ter uèinek nevidnosti pri ljudeh in objektih. Mogoèe je to tudi odgovor na uganke, kot so NLP in Bermudski trikotnik.

Po teoriji, ki jo je postavil znanstvenik Ivan Sanderson, deluje planet Zemlja kot ogromen elektromagnetni generator, ki ga sestavljajo t.i. mre ni vozli, v katerih prihaja do specifièni anomalij. Mre ni vozli pod doloèenim pogoji ustvarjajo magnetne vrtince, v katerih se nahajajo prehodi, ki omogoèajo prestop iz ene dimenzije v drugo. V teh vozlih se poleg materializacije in dematerializacije nahajajo še drugi nepojasnjeni fenomeni, kot so èasovni precepi, magnetne anomalije itn.

Najnovejše znanstvene raziskave dokazujejo, da je vesolje sestavljeno iz miniaturnih pozitivnih in negativnih energetskih nabojev. Atomi nastajajo med razliènimi vibratornimi moduli (utripanje, spirale, valovi, sile), na toèki, kjer prihaja do interreakcije, pa se ustvarja materija.

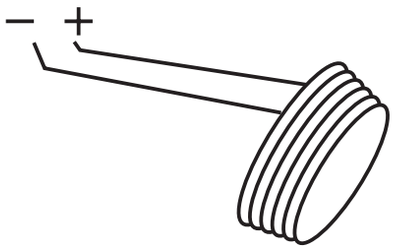
È lovekova misel lahko z alternacijo molekularnih modulov vpliva na materijo, vendar pa je to mogoèe le v primeru, ko se èlovek nahaja v posveèenem stanju (npr. stanju globokega spoštovanja, obèudovanja), ali ko je miselna aktivnost pozitivna (veselje, prijetnost). Le v tem stanju lahko pride do vibratornega zlitja med È lovekom in Stvarnikom. È e pa se ne nahajamo v takem stanju zavesti, se naša povezava s Stvarnikom izgublja, kar zavira osebno voljo. Za neposveèeno stanje so znaèilni obèutki nestrpnosti, kar lahko privede do frustracij in razoèaranj. È e ljubezen prevlada, izostrujemo pravo koncentracijo, ki ima za posledico obèutek notranje izpolnitve in uspeha. Vendar pa nam ne-gativna izkušnja pomaga preoblikovati naš negativni miselni modul. Karma nam daje povratno izkušnjo dominacije in negativnosti, ki smo jo povzroèili drugemu. Na ta naèin neposredno obèutimo naèelo izkorišèanosti in zlorabe, kar nam daje uvid v razumevanje etike in s tem t.i. naèela *dobrega* in *zla*.

re-shape our negative module of thought. Karma offers a recurring experience of domination and negativity, which we have caused in other people. As a result, we experience the principle of exploitation and abuse directly. This offers the recognition of understanding ethics and the so-called principle of *good* and *evil*.

AC/DC - THE FIELD WITHIN THE FIELD OF THE MAGNETIC RESONATOR

The magnetic resonator is a simple device, as can be seen in Figure 1. The major component - the electromagnet can be composed from a circular-shaped soft iron core and a magnetic-wire coil, with a diameter of 2L.

the core with coils/
jedro z navitjem 2



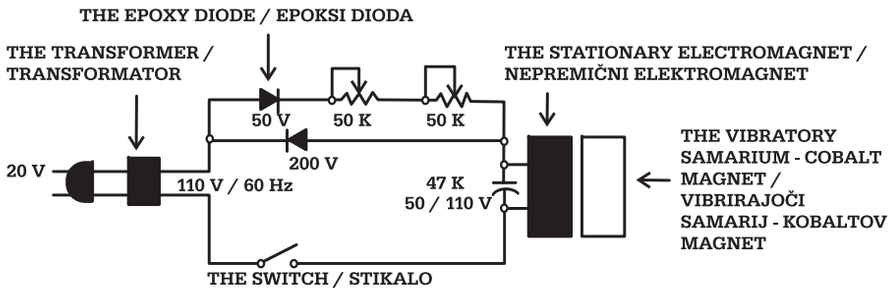
In case a circular core cannot be found, any other may be used. Workshops where electric motors get serviced would be the appropriate address to purchase such a core.

THE MAGNETIC RESONATOR - IMPORTANT DATA AND INSTRUCTIONS

The sole deficiency of the device (if we can call it a deficiency) is that the resonator needs to be installed on the so-called earth-energy webknot. If the device is not installed in place, then only the effect of the spiritual time machine and astral projection can be performed.

The magnetic resonator generates the AC/DC field. The AC (alternating current) field corresponds with the physical aspect of a human being,

AC/DC - POLJE ZNOTRAJ POLJA MAGNETNEGA RESONATORJA



the scheme of the magnetic resonator/
shema magnetnega resonatorja 1

Iz slike 1 je razvidno, da je magnetni resonator enostavna naprava. Glavno komponento - elektromagnet je mogoèe narediti iz jedra, ki mora biti iz mehkega ⍰eleza kro⍰ne oblike ter navitja iz magnetne ⍰ice v velikosti premera 2L.

V primeru, da ne najdemo jedra kro⍰ne oblike, lahko uporabimo tudi kakšno drugo. Za nakup le-teh so delavnice, ki popravljajo elektromotorje, pravi naslov.

MAGNETNI RESONATOR - POMEMBNI PODATKI IN NAVODILA

Edina pomanjkljivost naprave (èe se temu lahko reèe pomanjkljivost) je ta, da mora biti resonator postavljen na t. i. zemeljskem energetsko mre⍰nem vozlu. Èe naprave ne postavimo nanj, je mogoèe izvesti samo uèinek spiritualnega èasovnega stroja in astralne projekcije.

Magnetni resonator generira AC/DC polje. AC (izmenièno) polje resonanèno ustreza fizièmemu vidiku èloveka, medtem ko DC (enosmerno)

while the DC (direct current) field corresponds with the astral aspect. During the astral projection experiment, the samarium magnet must be set on the third chakra (abdominal) such that the negative pole of the magnet is turned upside down. The electromagnet gets set over it and the device is switched on. The extracorporeal experience begins a few moments after the experiment is activated. During the process, the value of the potentiometer must be adjusted to the highest value. A pendulum or any other *psionic* device can adjust the magnetic resonator. If the frequency for the astral projection needs to be adjusted, the pendulum should be held above the magnetic resonator while concentrating on the desire or question, being posed in our minds. The process should be terminated the moment the pendulum reacts and the frequency value being looked for should be recorded. This descriptive method can also be applied in medicine (e.g. diagnostics).

The magnetic resonator creates a hyperfield, also referred to as *fundamentally inverted magnetism*. The diodes within the magnetic resonator function as miniature pyramids with a resonance of *phi* = 1,618, which in other words means that the experimenter is in resonance with the reference point while the device is being activated.

The diagram in Figure 3 explains how the AC/DC field influences physical reality.

The scheme clearly depicts how the alternating current rotates from the negative to the positive pole and vice versa, while the direct current flows in one direction only, causing the stress factor on one of the AC lines.

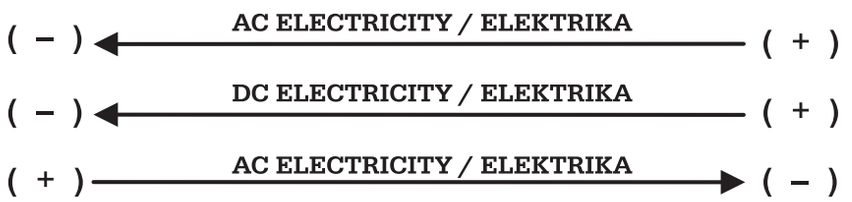
The magnetic resonator is the device that can vary the flow of time or the gravitation factor and we can then be expressed using the mathematic formula: electromagnetism x electricity = gravitation. If the gravitation factor is changed, then the factors of time, location or dimension also change. Everything can develop further on and the so-called *cosmic diode* can be created. The glass ball could be filled with the argon gas and put in the electromagnet and the samarium

polje ustreza astralnemu vidiku. Pri poskusih astralne projekcije je potrebno postaviti samarijev magnet na tretjo, trebušno èakro tako, da je negativni pol magneta obrnjen navzdol. Preko njega postavimo elektromagnet in aktiviramo napravo. Izventelesna izkušnja se priène nekaj trenutkov po prièetku eksperimenta. Med samim procesom mora biti potenciometer postavljen na najvišjo vrednost. Magnetni resonator lahko uravnamo z nihalom ali s kakšno drugo *psionistièno* napravo. Èe želimo naravnati frekvenco za astralno projekcijo, moramo držati nihalo nad magnetnim resonatorjem, obenem pa se moramo koncentrirati na željo oz. vprašanje, ki ga zastavljamo v mislih. Takoj ko se nihalo odzove, moramo postopek ustaviti ter zapisati vrednost frekvence, ki smo jo iskali. Opisano metodo lahko uporabljamo tudi v medicini (npr. diagnostika).

Magnetni resonator ustvarja hiperpolje, imenovano tudi *temeljno obrnjen magnetizem*. Diode znotraj magnetnega resonatorja delujejo kot miniaturne piramide z resonanco *phi* = 1,618, kar drugaèe povedano pomeni, da je eksperimentator, medtem ko je naprava aktivirana, v resonanci z referenèno toèko.

Diagram na sliki 3 pojasnjuje, kako AC/DC polje vpliva na fizièno stvarnost.

3



Iz sheme je razvidno, da se izmenièni tok (AC) obraèa od negativnega k pozitivnemu polu in obratno, medtem ko teèe enosmerni tok (DC) samo v eni smeri, kar povzroèa stresni faktor na eni od AC linij.

Magnetni resonator je naprava, ki lahko spreminja pretok èasa ali faktor gravitacije, kar lahko zapišemo z naslednjo matematièno formulo:

magnet. In deduction from the above-mentioned, the potential gained by linking the Tesla coil and electromagnet can only be surmised.

By adjusting the time frequency, the magnetic resonator can be prepared for inter-dimensional journeys. By subtracting 7.8 Hz, which represents the value at which the earth webknot oscillates, from 60 Hz, we get the number 52.2, which accords with the angle of inclination of the Giza pyramid. Therefore, if the magnetic resonator is activated above the webknot, an energy field is thus created, which corresponds with the angle of inclination of the Giza pyramid.

It would be interesting to perform an experiment, in which one pointer in the potentiometer would be adjusted to 60 metres and the other to 24 metres. The reason for such a selection lies in the fact that 60 x 24 = 1440, i.e. the value, which represents one of the harmonies of the speed of light.

Since large quantities of cobalt and nickel were discovered in the Bermuda-triangle area, iron and cobalt were chosen for the construction of the resonator. Hypothetic assumptions revealed the following: if a ship sails through the above-mentioned region of cobalt and nickel, under certain conditions, the motors connect to the webknot frequency, which can cause the transition to another dimension. The USA navy used vacuum tubes in the Philadelphia experiment for the passage. Let us add yet another aspect: the stronger the cobalt magnet, the better the experiment.

A pyramid can be used for the astral projection pyramid or the effect of the spiritual time machine. The pyramid can be set upside down, with the electromagnet and the samarium magnet over it. Only a few moments later, fascinating results are produced.

The electric current flows from the infrared to the ultrared spectre in the majority of electric systems. The consequence is a change in the field direction surrounding the samarium magnet, which means that

elektromagnetizem x elektrika = gravitacija. Èe spremenimo faktor gravitacije, se spremeni tudi faktor èasa, lokacije ali dimenzije. Vsa stvar se lahko razvija še dalje in ustvariti je mogoèe t.i. *kozmièno diodo*. Stekleno kroglo napolnimo s plinom argona in vanjo postavimo elektromagnet ter samarijev magnet. Iz zgoraj navedenega lahko le zaslutimo, kakšne razse nosti bi dobili s povezavo Tesline tuljave in elektromagneta.

Z uravnavo èasovne frekvence lahko magnetni resonator pripravimo za interdimenzionalna potovanja. Èe vrednosti 60 Hz odštejemo 7,8 Hz, ki predstavlja vrednost, pri kateri oscilira zemeljski mre ni vozel, dobimo število 52,2, kar ustreza naklonskemu kotu piramide v Gizi. Èe torej aktiviramo magnetni resonator nad mre nim vozlišèem, ustvarimo energetsko polje, ki ustreza naklonskemu kotu piramide.

Zanimivo bi bilo narediti eksperiment, pri katerem bi bil en kazalec potenciometra naravnan na 60 m, drugi pa na 24 m. Razlog tega izbora le i v dejstvu, da je 60 x 24 = 1440, to pa je vrednost, ki predstavlja eno izmed harmonij svetlobne hitrosti.

Ker so na podroèju Bermudskega trikotnika našli veliko kolièino kobalta in niklja, se za konstrukcijo resonatorja uporabljata mehko elezo in kobalt. Hipotetièna predvidevanja so pokazala naslednje: èe ladja pod doloèenimi pogoji plove skozi zgoraj navedeno obmoèje kobalta in niklja in se njeni motorji preklopijo na frekvenco mre nega vozla, lahko to povzroèi prehod v drugo dimenzijo. Za ta prehod je ameriška mornarica v eksperimentu Philadelphia uporabila vakuumske cevi. Dodamo naj še to, da moènejši kot je kobaltov magnet, boljši eksperiment lahko izvedemo.

Piramido lahko uporabimo za eksperiment astralne projekcije ali za uèinek spiritualnega èasovnega stroja. Piramido postavimo nad glavo, preko nje pa elektromagnet in samarijev magnet. e po nekaj trenutkih dobimo izredno zanimive rezultate.

the field surrounding the electromagnet is also turned upside down. The result of the phenomenon is the origin of the so-called *hyperfield*. The magnetic resonator emits radiation in an ultraviolet spectre. If soft iron is used for the electromagnet construction, the radiation increases. Ultraviolet radiation is so penetrating that neither time nor space obstacles present a problem, which means that a return to the coordinates of the null time is achievable. The magnet resonator can be adjusted to the null-positive or null-negative vector. Each of the vectors lies perpendicularly to one another.

It would be interesting to set the 'ELF' circuit inside the magnet resonator, since this is the way to substantially amplify thoughts. The mental-strengthening frequency is 7.8533975 Hz. Use of a quartz crystal and a Moebius coil can produce extremely interesting results.

The earth webknot oscillates at the frequency of 60 Hz. By activating the magnetic resonator, it is possible to gain a kind of dimensional pressure. The cause of the phenomenon is the resonance between the webknot and magnetic resonator. Since the magnetic resonator can be adjusted to a specific year or some other period, it is vital to know the value of harmonies, which correspond with the specific degrees on the potentiometer. Note the table right.

Such values are functional with potentiometers, which are adjusted to values ranging from 1 to 100. Equality signs from the table below can be interpreted in a very simple way. Let us take an example: we are looking for the harmony values when the value of the potentiometer on the scale is between 1 and 8.4 m. To get the desired value we have to multiply 144 (the light harmony) with 1.618, which equals 232.292. This is the desired value of harmony. If we would like to travel in the year 2000, we would need to regulate the value of the potentiometer between 33.6 and 50.4. However, it is important to emphasise that the choice of harmony still lies within the theoretic domain. (The original serbo-croation text appeared before year 2000; editor's addition.)

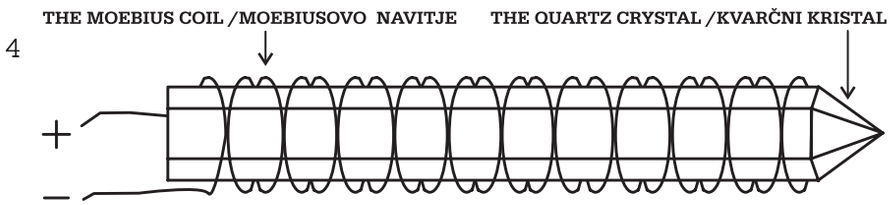
Kot je znano, teèe elektrièni tok v veèini elektrièniih sistemov od infrardeèega k ultravijolièneni spektru. Posledica tega je sprememba smeri polja, ki obkro a samarijev magnet, kar pomeni, da je tudi polje, ki obkro a elektromagnet, obrnjeno. Rezultanta tega pojava je nastanek t.i. *hiperpolja*. Magnetni resonator oddaja sevanje v ultravijolièneni spektru. Èe za konstrukcijo elektromagneta uporabimo mehko elezo, se sevanje še poveèa. Ultravijolièno sevanje je tako prodorno, da zanj ne obstajajo èasovno-prostorske ovire, kar pomeni, da je mogoèe vrnitev v koordinate niènega èasa. Magnetni resonator je mogoèe uravnati na niè-pozitiven in niè-negativen vektor. Vsak od teh vektorjev le i pravokotno drug na drugega.

Zanimivo bi bilo postaviti 'ELF' krog znotraj magnetnega resonatorja, saj lahko na ta naèin znatno poveèamo misli. Frekvenca za krepitev misli je 7,853975 Hz, uporaba kvarènega kristala ter Moebiusovega navitja pa lahko prinese zelo zanimive rezultate.

Zemeljski mre ni vozel oscilira na frekvenci 60 Hz. Z aktiviranjem magnetnega resonatorja je mogoèe dobiti neko vrsto dimenzionalnega pritiska. Razlog temu pojavu je resonanca med mre nim vozlom in magnetnim resonatorjem. Glede na to, da lahko magnetni resonator uravnavamo na specifièno leto ali kakšno drugo èasovno obdobje, je potrebno poznati vrednost harmonij, ki ustrezajo doloèenim stopinjam na potenciometru. Glej spodnjo tabelo.

1	to/do	8,4	=	144 x	0
8,4	to/do	16,8	=	144 x	20
16,8	to/do	25,2	=	144 x	30
25,2	to/do	33,6	=	144 x	50
33,6	to/do	42	=	144 x	80
42	to/do	50,4	=	144 x	130
50,4	to/do	58,8	=	144 x	210
58,8	to/do	67,2	=	144 x	340
67,2	to/do	75,6	=	144 x	550
75,6	to/do	84	=	144 x	890

POTENTIAL USE OF A QUARTZ/FLINT CRYSTAL IN THE MAGNETIC FIELD



a quartz crystal with a Moebius coil/
kvarèni kristal z Moebiusovim navitjem

Dimensional effects of the magnetic resonator can be increased with the help of a quartz/flint crystal. Besides, it is also suitable for the programming and execution of orders. The most effective way for creating the dimensional bridge is the following: by winding a Moebius coil around the crystal, as shown in Figure 4.

WARNING!
The use of a quartz crystal in combination with the magnetic resonator is extremely dangerous. If the crystal is installed without prior cleaning, there is a danger that the device develops its own *consciousness*, which means it will operate arbitrarily without the experimenter's control. The quartz crystal contains the element of consciousness or the so-called *elementary spirit*, which can attack the experimenter.

The best way to verify whether the crystal is "good" or "bad" is to let it pass through the psionic analyser. If there is no such opportunity, it can be exposed to the sunlight or placed under running water for a few hours to clear away any negative energy.

The quartz crystal has to possess 12 convexities on each side, altogether 24. While winding the Moebius coil, the negative and positive crossing points should cover the convexities. 24 convexities are

Takšne vrednosti so uporabne le pri potenciometrih, ki so uravnani na vrednosti od 1 do 100. Enaèaje iz zgornje tabele lahko interpretiramo na zelo enostaven naèin. Vzemimo primer, da išèemo vrednost harmonije, ko se vrednost potenciometra nahaja na skali od 1 do 8,4 metra. Èe hoèemo dobiti leleno vrednost, moramo 144 (harmonija svetlobe) pomnoiti s številom 1,618, kar znaša 232,992, ki je iskana vrednost harmonije. Èe bi hoteli odpotovati v leto 2000, bi morali vrednost potenciometra regulirati na obmoèje med 33,6 in 50,4, vendar je treba opozoriti, da je izbira harmonije še vedno v domeni teorije. (Originalni srbohrvaški tekst je bil napisan pred letom 2000; opomba urednika.)

MOINOST UPORABE KVARÈNEGA/KREMENOVEGA KRISTALA V MAGNETNEM RESONATORJU

S kvarènim kristalom lahko poveèamo dimenzionalne uèinke magnetnega resonatorja. Poleg tega je primeren tudi za programiranje in izvrševanje ukazov. Najuèinkovitejši naèin za ustvarjanje dimenzionalnega mostu je naslednji: okoli samega kristala navijemo Moebiusovo navitje, kot je prikazano na sliki 4.

POZOR!
Uporaba kvarènega kristala v kombinaciji z magnetnim resonatorjem je zelo nevarna. Èe kristal namestimo brez predhodnega èišèenja, obstaja velika nevarnost, da bo naprava razvila svojo lastno *zavest*. To pa pomeni, da bo delovala svojevoljno, brez kontrole eksperimentatorja. Kvarèni kristal namreè vsebuje element zavesti oziroma t.i. *elementarni duh*, ki lahko poškoduje eksperimentatorja.

Najboljši naèin preverjanja, ali je kristal "dober" ali "slab", je ta, da ga spustimo skozi psionièni analizator. Èe te moinosti nimamo, ga izpostavimo sonèni svetlobi ali pa ga nekaj ur pustimo pod tekoèo vodo in na ta naèin oèistimo negativno energijo.

Kvarèni kristal mora imeti na vsaki strani 12 izboklin, skupaj torej 24. Pri navijanju Moebiusovega navitja se morajo negativne in pozitivne

required on the basis of mathematical calculations: 24 x 60 = 1440, representing the well-known harmony of the speed of light. By setting up the quartz crystal and the Moebius coil, we connect to the field of universal harmony, thus creating a whirl and the so-called *effect of null-space*. According to data, familiar to the author of this article, there are 5 various frequencies of webknots: 60 Hz, 7.853975 Hz, 471.2385 Hz, 52.146025 Hz and 295.61924 Hz. Each of the frequencies is useful for transition to another dimension. The frequency 7.8 Hz can be used with spiritual time machines or for an astral projection.

The location at which the quartz crystal with the Moebius coil can be installed in the magnet resonator is somewhere between the diodes of the electromagnet.

THE THEORETICAL CONCEPT OF THE TIME MACHINE

It has been proven through experimentation that the AC/DC electricity being generated by the magnet resonator produces the whirl that takes us to another time dimension. An explanation for this phenomenon can be found in the hypothesis, which says that the coordinate system x, y, z, t is acquired when the polarity of AC and DC electricity inside the electromagnet corresponds. In other words, the AC electricity travels in one direction and the DC in the other, while electromagnetism resides at a right angle in relation to the former two.

The fourth field is gravitation or time, which varies the point of null-space residing in the centre of the coordinate system x, y, z, t. This is the point at which everything is probable, even the phenomenon of time travel. Tesla and Einstein were familiar with the phenomenon. From what we have already mentioned, it is clear that there are various ways of creating the null-space. The majority of them are very simple. Tesla discovered that the point of null-space could be enlarged

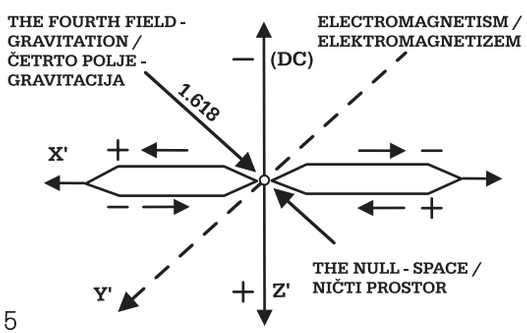
kri‑išène toèke prekrivati s temi izboklinami. 24 izboklin je potrebnih zaradi matematiènega izraèuna 24 x 60 = 1440, kar je ‑e znana harmonija svetlobne hitrosti. Z vstavljanjem kvarènega kristala ter Moebiusovega navitja se preklopimo na polje univerzalne harmonije, kar kreira vrtinec in t.i. *uèinek nièneg prostora*. Po podatkih, ki so znani piscu tega èlanka, obstaja najmanj 5 razliènih frekvenc mre‑nih vozlov: 60 Hz, 7,853975 Hz, 471,2385 Hz, 52,146025 Hz in 295,61924 Hz. Vsaka od teh frekvenc je uporabna za prehod v drugo dimenzijo. Frekvenca 7,8 Hz je uporabna za spiritualni èasovni stroj ali pa za astralno projekcijo.

Prostor, kamor bi vgradili kvarèni kristal z Moebiusovim navitjem v magnetni resonator, se nahaja nekje med diodama elektromagneta.

TEORETIÈNI KONCEPT ÈASOVNEGA STROJA

Eksperimentalno je dokazano, da AC/DC elektrièni tok, ki jo generira magnetni resonator, ustvarja vrtinec, ki nas popelje v drugo èasovno dimenzijo. Pojasnilo za ta pojav lahko najdemo v hipotezi, ki pravi, da vedno, kadar je polarnost AC in DC elektrike znotraj elektromagneta skladna, dobimo koordinatni sistem x, y, z, t. Z drugimi besedami to pomeni naslednje: AC elektrika potuje v eni smeri, DC v nasprotni, medtem ko se elektromagnetizem nahaja pod pravim kotom v primerjavi s predhodnima dvema.

the coordinate system x, y, z, t/koordinatni sistem x, y, z, t



5

Èetrto polje je gravitacija oziroma èas, ki spreminja toèko nièneg prostora, ki se nahaja v centru koordinatnega sistema x, y, z. To je toèka, v kateri je mogoèe prav vse, zato tudi fenomen èasovnega potovanja. Tesla

if static electricity were let off at high frequency through the 2-d vortical grid. Therefore, the results that can be obtained by using the magnetic resonator at high frequency static electricity in the webknot range are conceivable.

The basic principle upon which the universe is built is the number *phi* = 1.618. Diagram 5 clearly demonstrates that gravitation is in direct relation to the number. The construction building also provides interesting information. If the value *phi* was used in building an object, the time distortion usually appeared inside or outside the object.

CONSTRUCTION OF THE MAGNETIC RESONATOR (Components):

- panel
- 50 V epoxy diode
- 200 V epoxy diode
- 0.047 K 50/100 V capacitor
- two 50-kohm potentiometers
- switch
- two insulated telephone connectors
- two telephone recepticles
- two 30 cm long insulated telephone lines for connecting to the electromagnet
- 122 m of the 2L magnetic wire (which we use for electric motors)
- soft iron core (circular-shaped if possible)
- samarium-cobalt magnet
- special high-temperature resistant band (which we use for electric motors)
- transformer 220 V - 110 V
- extension cable for connecting to the source of electricity
- plastic box made from solid, heat-resistant plastic material

in Einstein sta poznala ta fenomen. Iz zgoraj navedenega je razvidno, da obstaja veè naèinov kreiranja niènega prostora. Veèina od njih je tudi zelo enostavna. Tesla je odkril, da lahko toèko niènega prostora poveèamo, èe statièno elektriko z visoko frekvenco spustimo skozi 2-d vrtinèaste rešetke. Na osnovi tega si lahko predstavljamo, kakšne rezultate bi dobili z uporabo magnetnega resonatorja pri visoki frekvenci statične elektrike v obmoèju mre nega vozla.

Osnovno naèelo, na katerem je zgrajeno celo vesolje, je število *phi* = 1,618. Iz diagrama 5 je razvidno, da je gravitacija neposredno odvisna od tega števila. Zanimiv je naslednji podatek iz gradbeništva. Èe je bila pri gradnji nekega objekta uporabljena vrednost *phi*, je ponavadi prišlo do èasovne distorzije znotraj objekta ali izven njega.

KONSTRUKCIJA MAGNETNEGA RESONATORJA (sestavni deli):

- deska
- 50 V epoksi dioda
- 200 V epoksi dioda
- 0.047 K 50/100 V kondenzator
- dva 50-kom potenciometra
- stikalo
- dva izolirana telefonska konektorja
- dve telefonski vtièmici
- dve 30 cm dolgi izolirani telefonski vrvici za priklop na elektromagnet
- 122 m 2L magnetne ice (tiste, ki jo uporabljamo za električne motorje)
- mehko elezo (èe je le mogoèe, naj bo kro ne oblike)
- samarij-kobaltov magnet
- poseben visoko toplotno odporen trak (uporabljamo ga za električne motorje)
- transformator od 220 V do 110 V
- podaljšek za priklop naprave na izvor elektrike
- plastièen zaboj, narejen iz trde, toplotno odporne plastike

CONSTRUCTION

The schematic concept of the magnet resonator is shown in Figure 1. The epoxy diode in the capacitor needs to be installed on a wooden panel, size 5 x 7.5 cm. Due to safety precautions, all components must have the appropriate distance among them, otherwise the safety fuse may cut out or fire might break out. Both connectors have to be attached on both sides of the capacitor so that the telephone jack plugs can be connected to telephone connectors. The soft iron used to produce the electromagnet needs to be insulated with insulating tape. Then, after winding the magnet around the core, a layer of tape gets put over it. This is necessary since the electromagnet heats up enormously during the experiment. Telephone cables need to be connected with two wires, which come out of the electromagnet and need to be insulated as well. Finally, the telephone jack plugs get connected with the tips of the so-called telephone cables. Now everything is ready to connect the electromagnet to the wheel. The 2L magnetic wire gets used; 122 metres is required for the coil. Instead of the samarium-cobalt magnet, a ceramic or so-called *Alnico magnet* can also be used.

Components, needed to construct the magnetic resonator, are usually available in workshops where electric motors are serviced, and these shops also hold magnetic and insulating tapes.

The electromagnet represents a cathode inside the vacuum pipe of the magnetic resonator, and the cobalt magnet an anode. A distance of *phi* = 1.618 between the electromagnet and the cobalt magnet is required for multi-dimensional experiments.

WARNING!
Damage to the coil can be avoided if the magnetic resonator is connected up to a maximum of 7 minutes during each experiment.
Figure 6 represents the detail of the connection between the electromagnet and the wheel.

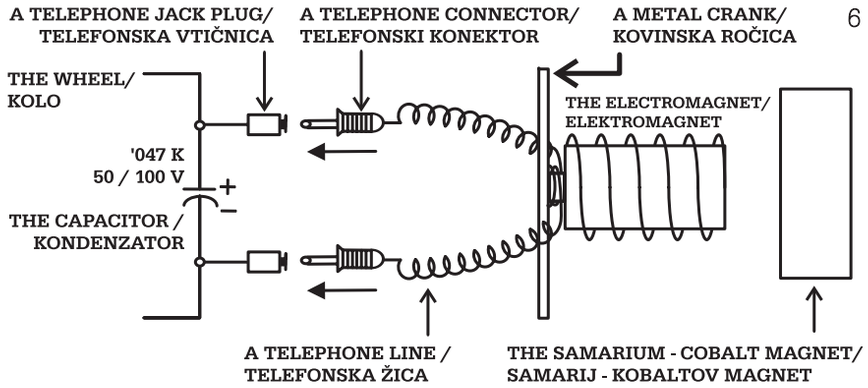
KONSTRUKCIJA

Shematski koncept magnetnega resonatorja je prikazan na sliki 1. Epoksi diode in kondenzator je potrebno namestiti na leseno plošèo v velikosti 5 x 7,5 cm. Iz varnostnih razlogov morajo biti vse komponente, ki sestavljajo napravo, dovolj oddaljene ena od druge; v nasprotnem primeru lahko pride do izpada varovalke ali do po□ara. Za preklop telefonske vtièmice na telefonske konektorje moramo oba konektorja povezati na obeh straneh kondenzatorja. Mehko □elezo, ki ga uporabljamo za izdelavo elektromagneta, moramo izolirati s toplotno-izolirnim trakom. Nato okoli jedra navijemo magnetno □ico, preko nje pa še sloj traku. To moramo storiti zato, ker se elektromagnet med eksperimentom zelo segreje. Telefonske kable nato pove□emo z dvema □icama, ki prihajata iz elektromagneta, ki jih je prav tako potrebno izolirati s trakom. Na koncu pove□emo še telefonske vtièmice s konci t.i. telefonskih kablov. Sedaj je vse pripravljeno za priklop elektromagneta na kolo. Za navitje elektromagneta je potrebno uporabiti 2L magnetno □ico dol□ine 122 m. Namesto samarij-kobaltovega magneta lahko uporabimo tudi keramièni ali t.i. *alnico magnet*.

Dele, ki jih potrebujemo za konstrukcijo magnetnega resonatorja, je najla□je najti v delavnicah za popravilo elektrièmih motorjev, kjer ponavadi posedujejo tudi magnetne in izolirane trakove.

Elektromagnet predstavlja katodo znotraj vakuumske cevi magnetnega resonatorja, kobaltov magnet pa anodo. Za veèdimenzionalne eksperimente je med elektromagnetom in kobaltovim magnetom potrebna varnostna razdalja *phi* = 1,618

OPOZORILO!
Da bi se izognili morebitnim poškodbam namota mora biti magnetni resonator med vsakim eksperimentom vkljuèen najveè 7 minut.
Slika 6 ponazarja detajl povezave elektromagneta in kolesa.



the detail of the connection between the electromagnet and the wheel/detajl povezave med elektromagnetom in kolesom

EXPERIMENTS WITH THE HELP OF THE MAGNETIC RESONATOR

SPIRITUAL TIME MACHINE

To travel spiritually into another time dimension, the cobalt magnet must be set on the seventh chakra, so that the negative side of the magnet is turned head down. The electromagnet then gets set over the positive side of the cobalt magnet, the potentiometer needs to be adjusted to the highest value and the device can be switched on. The *out of body experience* usually happens a minute after the experiment has started.

PHYSICAL TIME MACHINE

To travel through time physically as well, the magnetic resonator must be activated on the positive or negative webknot.

INVISIBILITY

Invisibility can be achieved by activating the magnetic resonator on the earth webknot.

TELEPORTATION

Teleportation can be performed in the same way as the experiment of the time machine.

EKSPERIMENTI S POMOÈJO MAGNETNEGA RESONATORJA

SPIRITUALNI ÈASOVNI STROJ

Za spiritualno potovanje v drugo èasovno dimenzijo je potrebno postaviti kobaltov magnet na sedmo èakro tako, da je negativna stran magneta obrnjena navzdol. Nato postavimo elektromagnet preko pozitivne strani kobaltovega magneta. Potenciometer je potrebno nastaviti na najvišjo vrednost in napravo lahko vkljuèimo. Ponavadi doživimo *izventelesno izkušnjo* le minuto po prièetku eksperimenta.

FIZIÈNI ÈASOVNI STROJ

Da bi lahko potovali skozi èas tudi fizièno, je potrebno aktivirati magnetni resonator na pozitivni ali negativni mrežni toèki.

NEVIDNOST

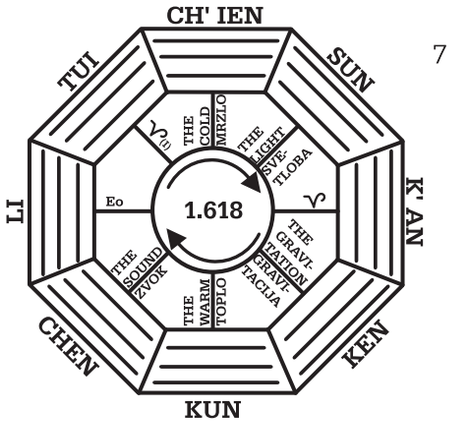
Dosežemo jo lahko le z aktiviranjem magnetnega resonatorja na zemeljskem mrežnem vozlu.

TELEPORTACIJA

Izvedemo jo lahko na enak naèin kot eksperiment fiziènega èasovnega stroja.

HEKSATRON

Konstrukcija kozmiènega kondenzatorja po naèelu *I Chinga*



a dynamic display of the belief field in relation to *I Ching/*
dinamièen prikaz polja vere na osnovi *I Chinga*

Heksatron je psihotronièna naprava, ki je zgrajena po naèelu *I Chinga,* s pomoèjo katerega lahko izvedemo poskus prehoda v drugo dimenzijo.

HEXATRON

The hexatron is a psychotronic device that has been built according to the *I Ching* principle, with help of which the experiment of transition to another dimension can be performed.

Figure 7 shows that all 8 forces functioning in the universe are closely related to the value *phi* = 1.618. In a mathematical context, the number phi represents the field of belief, which means that all things in the universe derive from the field of belief.

The cosmic capacitor can be made with the help of a hexagram obtained by tossing up three coins. The result of a throw is interpreted with the help of *I Ching*. Let us consider the principle and combinations in throwing coins.

The table shown in Figure 8 presents potential combinations that result by tossing three coins. The hexagram is generated after having tossed three coins six times; combinations are either positive (- - -) or negative (——) and we need to write them down.

The procedure of making the cosmic capacitor is as follows: we take three coins in both hands, shake them and simultaneously formulate a question in our minds. In our case: How to make the cosmic capacitor, which would operate also as a time machine?

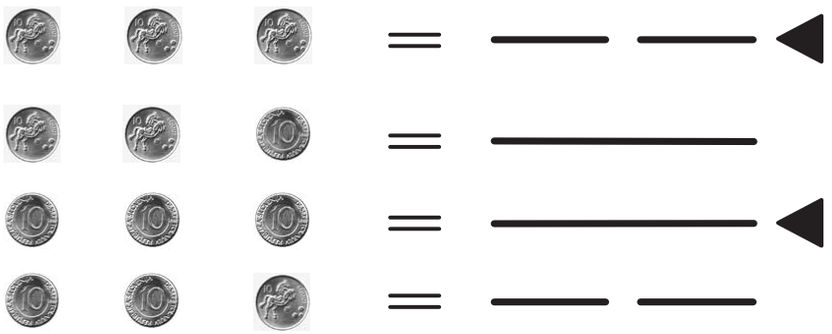
While tossing coins, we pose a question: what kind of a capacitor do we need - for the future or the past? Once having tossed the coins, we draw the formulated sign.

We have to repeat the procedure six times, so that we obtain six lines, which we draw from the bottom up. The hexagram (lines include also miniature triangles) is ready for the conversion to the cosmic capacitor. The procedure of conversion is simple and is shown in Figure 9, where it can be seen that such a capacitor is suitable for travelling to the past only. The capacitor suitable for travelling

Na sliki 7 lahko vidimo, da je vseh 8 sil, ki delujejo v vesolju, povezanih z vrednostjo *phi* = 1,618. V matematiènem kontekstu predstavlja število *phi* polje verovanja, kar pomeni, da vse stvari v vesolju izhajajo iz polja vere.

Kozmièni kondenzator je mogoèe narediti s pomoèjo heksagrama, ki ga dobimo z metom treh kovancev. Rezultat meta interpretiramo s pomoèjo *I Chinga*. Poglejmo najprej naèelo in kombinacije pri metanju kovancev.

8



the tossing of coins and the interpretation according to *I Ching*/
met kovancev ter njihova interpretacija po *I Chingu*

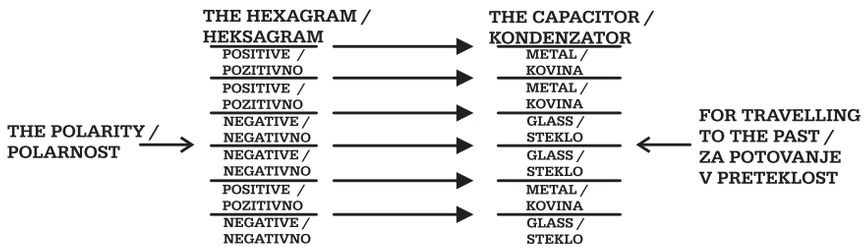
Tabela, ki je prikazana na sliki 8, prikazuje mo□ne kombinacije, ki jih dobimo pri metu treh kovancev. Heksagram dobimo s šestimi zaporednimi meti treh kovancev; kombinacije, ki so ali pozitivne (- - -) ali negativne (——), pa zapisujemo.

Postopek za izdelavo kozmiènega kondenzatorja je naslednji: tri kovance vzamemo v obe dlani, jih stresemo in se soèasno usmerimo na specifièno vprašanje, ki ga zastavimo v mislih. V našem primeru: Kako napraviti takšen kozmièni kondenzator, ki bo istoèasno deloval kot èasovni stroj?

Medtem ko tresemo kovance, vprašamo, kateri tip kondenzatorja potrebujemo - za prihodnost ali za preteklost. Kovance spustimo na mizo in zapišemo nastali znak.

to the future is shown in Figure 10, where it is evident that lines with miniature triangles change polarity in the process of transformation. The positive line (- - -) changes into the negative (——) and vice versa, which is not the case with lines without triangles.

the cosmic capacitor for travelling into the past/ 9
kozmièni kondenzator za potovanje v preteklost



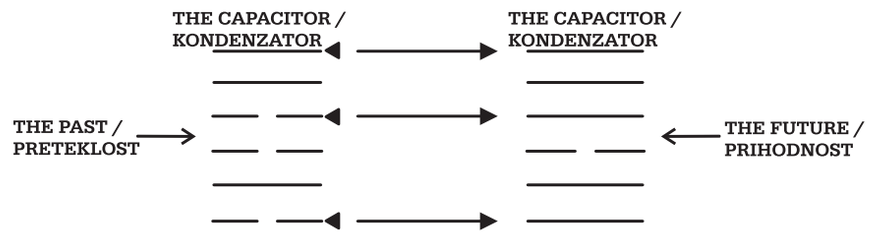
The newly constructed capacitor can be placed in the hexatron device (see Fig. 11). Its purpose is to strengthen the field of belief, which resides on a universal cosmic scale. It is evident that the device consists of three crystals to be set on the third chakra. Each of the crystals has to be shaped in the form of a hexagon, which ends up in a peak.

Now let us create a little mathematical digression. The crystal has 7 points (the hexagon as the basis + the peak), and we have three crystals, which represent the third chakra of the human body and reside in the abdominal part of the body. This means that we have to concentrate on this part even prior to the experiment. Do not embed only one or two crystals in the device, as the vibration is thereby thread, causing a decline that is under the influence of lower instincts in the astral hell of the first two chakras.

The mathematical-harmonic analysis helps to discover the following: by dividing the entire number of hexagrams, 64, with 24, i.e. the value representing the sum of positive and negative lines (see Fig. 7), the

Postopek ponovimo šestkrat, tako da dobimo šest linij, ki jih zapisujemo od spodaj navzgor. Tako dobljen heksagram (linije vključujejo tudi miniaturne trikotnike) je sedaj pripravljen za konverzijo v kozmièni kondenzator. Postopek konverzije je preprost in je prikazan na sliki 9, iz katere je razvidno, da je tako dobljen kondenzator primeren le za potovanje v preteklost. Kondenzator, ki pa je namenjen za potovanje v prihodnost, je prikazan na sliki 10, iz katere je razvidno, da linije z miniaturnimi trikotniki v procesu transformacije menjujejo polarnost. Pozitivna linija (- - -) se spremeni v negativno (——) in obratno, kar pa ne drži za linije brez trikotnikov.

the cosmic conductor for travelling into the future/ 10
kozmièni kondenzator za potovanje v prihodnost



Na ta naèin konstruiran kondenzator lahko vstavimo v napravo, ki se imenuje heksatron (slika 11). Namenjen je krepitvi polja vere, ki se nahaja na univerzalni kozmièni lestvici. Iz slike je razvidno, da je naprava sestavljena iz treh kristalov, ki jih postavimo na tretjo èakro. Vsak od teh kristalov mora biti obdelan kot šesterokotnik, ki se konèuje z vrhom.

Pa napravimo majhno matematièno digresijo. Kristal ima 7 toèk (šesterokotnik kot osnova + vrh), imamo 3 kristale, kar daje vrednost 21. Èe število 21 delimo z univerzalnim številom 7, še enkrat dobimo število 3, ki v tem primeru predstavlja tretjo èakro èloveškega telesa, ki se nahaja v trebušnem delu. To pa pomeni, da moramo med eksperimentom usmeriti koncentracijo na ta predel. Opozoriti pa moramo, da v napravo ne smemo vgraditi samo enega ali dveh kristalov, saj s tem zniamo vibracijo, kar povzroèa prevlado niih nagonov in astralnega pekla prvih dveh èaker.

number 2.66666 results. By reducing the acquired number to its supplement, the value 44 is obtained, which produces, if divided by 1.618, the value 27.194066. This value represents the external, temporal harmony of physical matter. On the other hand, by starting with the number 21, which comprises the number of edges and peaks from the three crystals in hexatron, and then adding the number 12, the complementary number 33 results. This number represents the value of an internal temporal harmony. Let us now add the data, by which the number 12 was obtained, by adding levels of dielectric layers of 2 capacitors. On the basis of these results, it can be concluded that connecting two capacitors in the hexatron increases the field of belief in an internal and external temporal harmony.

HOW TO LOCATE THE EARTH ENERGY WEBKNOT

The only practical way to locate earth webknots is by using radiesthesia. Different instruments of radiesthesia can be used for such a purpose. If the divining rod is chosen, then a horizontal line that is directed towards one of the cardinal points must be walked. The moment the ends of the divining rod draw closer, this signifies that the point of the webknot has been located. Another important matter is that there are positive and negative points in the webknot; consequently, the experimenter has to further discover, which point is suitable for the transition to another dimension. If the webknot is distant from the electric source, a rectifier for AC/DC can be used. If the converter is connected to the car battery, the magnetic resonator can be activated independently of the electric current source.

Once the point of the webknot is located and the device is activated, the teleportation of the car and experimenter to another dimension follows.

Additionally, webknots are activated at certain temporal sequences or parts of a day. The cause of such anomalies is yet unexplained, but

Z matematièno-harmonièno analizo smo ugotovili naslednje: èe skupno število heksagramov 64 delimo s 24, vrednostjo, ki predstavlja vsoto pozitivnih in negativnih linij (slika 7), dobimo število 2,6666666. Èe sedaj to število zmanjšamo na njegovo nadomestno vrednost, dobimo vrednost 44, ki daje, èe jo delimo z 1,618, vrednost 27,194066, kar predstavlja zunanjo èasovno harmonijo fizične materije. Èe sedaj po drugi strani vzamemo število 21, ki v sebi združuje število robov in vrhov treh kristalov v heksatronu, in mu prištejemo število 12, pridemo do komplementarnega števila 33, ki predstavlja vrednost notranje èasovne harmonije. Dodamo naj še podatek, da smo število 12 dobili s seštevanjem nivojev dielektričnih slojev 2 kondenzatorjev. Na osnovi tega lahko zaključimo, da lahko s priklopom dveh kondenzatorjev v heksatronu poveèamo polje vere v notranji in zunanji èasovni harmoniji.

KAKO DOLOÈIMO ZEMELJSKI ENERGETSKI MREŽNI VOZEL

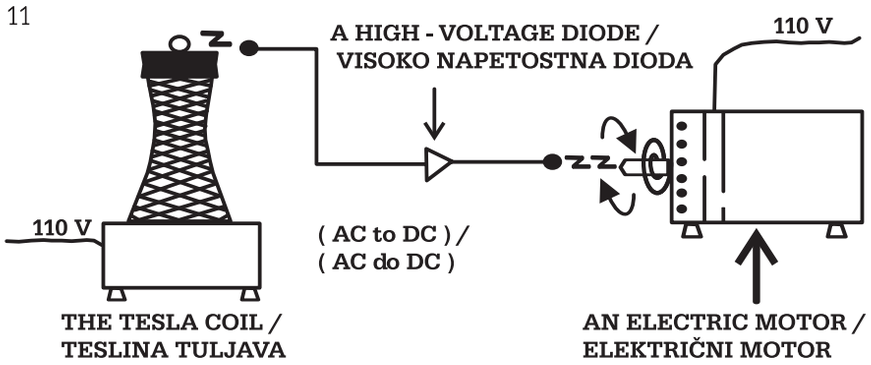
Edini praktièen naèin doloèanja zemeljskih mrežnih vozlov je uporaba radiestezije. V ta namen je mogoèe uporabiti različne radiestezijske instrumente. Èe se odloèimo uporabiti bajanice, moramo hoditi po vodoravni liniji, ki je usmerjena proti eni od štirih straneh neba. V trenutku, ko se vrhovi bajanice približajo drug drugemu, pomeni da smo našli toèko mrežnega vozla. Paziti moramo še na nekaj. Obstajajo pozitivne in negativne toèke mrežnega vozla, zato mora eksperimentator sam ugotoviti, katera toèka je primerna za prehod v drugo dimenzijo. Èe je mrežni vozel oddaljen od električnega izvora, je mogoèe uporabiti usmernik enosmernega toka v izmenični. Èe ta usmernik priključimo na avtomobilski akumulator, lahko na ta naèin aktiviramo magnetni resonator neodvisno od izvora električnega toka. Ko najdemo toèko mrežnega vozla in aktiviramo napravo, lahko prièakujemo teleportacijo avtomobila in eksperimentatorja v drugo dimenzijo.

Pri tem je potrebno še dodati, da se zemeljski mrežni vozli aktivirajo le pri doloèenih èasovnih sekvencah oziroma delih dneva. Vzrok teh

presumably it is related to gravitation waves. Therefore, the experimenter has to decide upon the appropriate time for performing any such experiment.

CONSTRUCTION OF AN ARTIFICIAL ENERGY WEBKNOT

11



the complex, with which we an artificial webknot can be acquired/
sklop, s pomoèjo katerega je mogoèe dobiti umetni mrelni vozel

An electric motor is required for the construction of an artificial webknot. The approximate size of the external gauges of the motor should be around 15 cm x 18 cm x 20 cm. It is recommended that the number of revolutions be 1625 per minute. The electric source is the electric grid. Figure 11 shows that the effect of the webknot requires high-frequency energy, which needs to be installed from a high-voltage diode to the electric motor axle. The Tesla coil could also be used as a source of high-frequency energy.

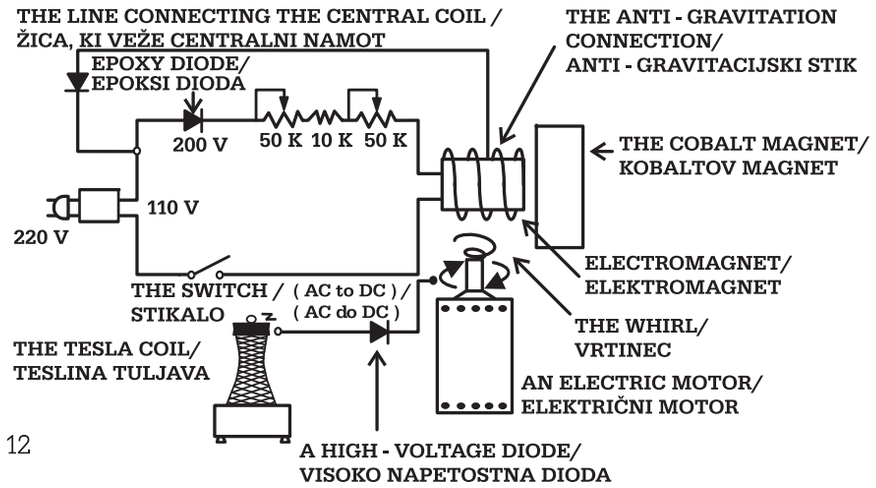
Such a device can be used experimentally as a physical time machine. The success of the experiment depends upon the distance between the axles of the electric motor and electromagnet. However, the best manoeuvre is not to change the distance during the experiment.

anomalij je trenutno še nepojasnjen, predvidevamo pa, da je povezan z gravitacijskimi valovi, zato mora eksperimentator sam doloèiti primeren èas eksperimentiranja.

KONSTRUKCIJA UMETNEGA ENERGETSKEGA MRE NEGA VOZLA

Za konstrukcijo umetnega mre nega vozla potrebujemo elektrièni motor. Orientacijska velikost zunanjih gabaritov motorja naj bi bila pribli no 15 x 18 x 20 cm. Priporoèljivo število obratov je okoli 1625 o/min. Elektrièni izvor je elektrièno omre je. Iz sheme 11 je razvidno, da je za uèinek mre nega vozla potrebna visoka frekvenca elektriène energije, ki jo je potrebno speljati preko visoke napetostne diode do osišèa elektrièneg motorja. Kot izvor visoke frekvenène energije bi lahko uporabili tudi Teslino tuljavo.

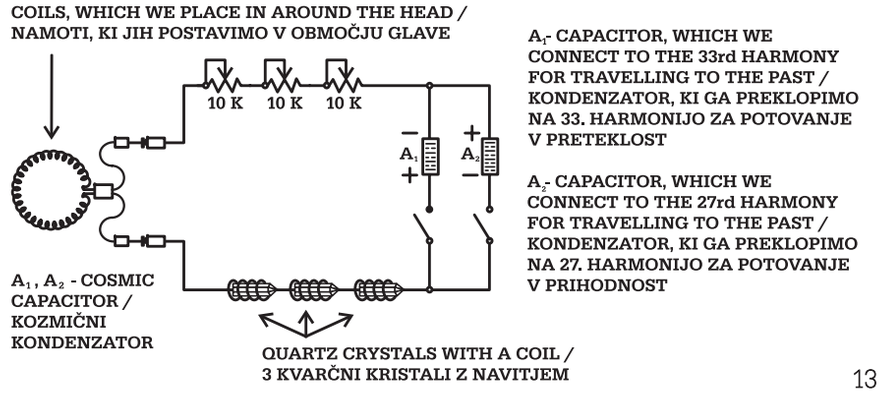
Takšno napravo lahko eksperimentalno uporabimo za fizièni èasovni stroj. Za uspešnost poskusa je pomembna razdalja med osovinama elektromotorja in elektromagneta. Sicer pa je najbolje, da razdalje ne spreminjamo med samim poskusom.



the magnetic resonator in combination with the complexes of the artificial webknot/magnetni resonator v kombinaciji s sklopoma umetnega mrelnega vozla

HEXATRON: AMPLIFIES THE FIELD OF BELIEF (13)

- coils, which we place in around the head
- A1 - capacitor, which we connect to the 33rd harmony for travelling to the past
- A2 - capacitor, which we connect to the 27th harmony for travelling to the future
- 3-quartz/flint crystals with a coil
- A1, A2 - cosmic capacitor



HEKSATRON: OJAÈA POLJE VERE (13)

- namoti, ki jih postavimo v obmoèje glave
- A1 - kondenzator, ki ga preklopimo na 33. harmonijo za potovanje v preteklost
- A2 - kondenzator, ki ga preklopimo na 27. harmonijo za potovanje v prihodnost
- 3 kvarèni / kremenovi kristali z namotom
- A1, A2 - kozmièni kondenzator

(Tekst je iz srbohrvaškega jezika prevedla Janja Rakuš.)

THE MASS ALIEN ABDUCTION EXPERIMENT (CULTURAL LEVITATION)

Dr. Rachel Armstrong

This Live Performance took place on Sunday 14 December 1977 at 6 p.m., at the Institute of Contemporary Art on the Mall, London, UK by Dr. Rachel Armstrong (now Russell) to define what the audience considered as the essence of humanity.

"The old style god is dead, science has no values and belief in mankind is the only answer."
Rodger Odgie 1997

The whole of Nature was considered in scientific terms for the first time in the seventeenth century. This viewpoint took increasing hold among investigators and was developed into a comprehensive theory to include the human body, by René Descartes (1596 - 1650). Descartes was a mathematician and philosopher who approached the study of human physiology with a strong mechanistic bias. He believed that the processes of human life, except for the mental processes, could be explained by the simple application of physical laws and through the understanding of the structure of matter. Descartes proposed that the mind was separate to the body and believed that intellect was the gift of God to mankind. He thought that mind existed outside of the body and was independent of it, although the two could interact through the pineal gland. This dualistic view of the human body is the philosophical basis of scientific thinking.

In this age of information technology, new models of what a human being is and how the human mind-body hybrid operates are emerging. In medical practice today, the body is commonly thought of as a complex, organic mind-body-machine. In some ways, we already are the computers and mechanical systems that we metaphorically refer to in describing ourselves, not just at a functional level, but also at a higher, spiritual level.

POSKUS MNOŠIÈNE IZVENZEMELJSKE UGRABITVE (KULTURNO LEBDENJE)

Dr. Rachel Armstrong

Performans se je odvijal v nedeljo 14. decembra 1977 ob 18. uri na Inštitutu za sodobno umetnost na Mallu v Londonu v Veliki Britaniji. Izvedla ga je Rachel Armstrong (zdaj Russell), da bi osvetlila pojmovanje o tem, kaj je bistvo èloveštva.

"Starodobni Bog je mrtev, znanost nima nobene vrednosti veè in vera v èloveštvo je edini odgovor."
Roger Odgie, 1997

Prvi znanstveni premislek Narave kot celote se je zgodil v 17. stoletju in kmalu je vse veè raziskovalcev povzemalo znanstveno gledišèe. Razvila se je obsežna teorija, ki je vključevala èloveško telo - postavil jo je René Descartes (1596 -1650). Descartes, matematik in filozof, je k študiju èloveške fiziologije pristopil z moènim mehanistièni poudarkom. Verjel je, da lahko življenjske procese, razen mentalnih, razložimo z uporabo fizikalnih zakonov in razumevanjem zgradbe materije. Trdil je, da je duh loèen od telesa in verjel, da je um boljši dar èloveštvu. Prepriècan je bil, da duh obstaja zunaj telesa in je od njega neodvisen, èeprav lahko oba delujeta vzajemno s pomoèjo èešerike. Dualistièni pogled na èloveško telo je filozofska osnova znanstvenemu razmišljanju.

V obdobju informacijske tehnologije se pojavlja vedno veè modelov o tem, kakšno je èloveško bitje in kako deluje èloveški križanec duh-telo. V sodobni medicinski praksi je telo splošno sprejeto kot zapleten, organski stroj duh-telo. V nekaterih pogledih smo že raèunalniki in strojni sistemi, na katere se metaforièno sklicujemo, ko se opisujemo, ne samo na ravni delovanja, temveè tudi na višji, duhovni ravni.

Znanost nanovo raziskuje odnos med telesom in duhom. “Nalaganje”

Joel O'Sullivan: Martian Pose (Dr. Rachel Armstrong), 1998/
Joel O'Sullivan: Marsovska poza (Dr. Rachel Armstrong), 1998

Due to these scientific advances, new possibilities between the body and the mind exist. In particular, the *uploading* of identity, or escape from the physical body by the mind have a far-reaching effect on where we perceive ourselves to *be*. Those who embrace the scientific worldview think that we are *in* our heads, whereas, in contrast, Buddhists think of themselves as being in their whole bodies

identitete ali beganje iz fiziènega telesa s pomoèjo duha imajo še posebno daljnosežne posledice na dojemanje èloveške *biti*. Pristaši znanstvenega pogleda zagovarjajo, da je naša bit *v* glavah, v nasprotju z budisti, ki verjamejo, da je *bit* v telesu kot celoti in meditirajo, da bi tako uskladili telesne energije z duhovnimi.

Zaradi naših predsodkov, ki so plod znanstvenega, newtonovskega pogleda na svet, pogosto odklanjamo ezoterièna stanja bivanja, saj jih oznaèujemo kot prevaro, zavajanje ali nekaj izmišljenega - tako zavraèamo tudi lebdenje kot del takih drugaènih stanj.

Del poskusa *množiène izvenzemeljske ugrabitve* je tudi namen izpostaviti omejenost znanstvenih vzorcev in opazovanj ter ponovno ovrednotiti dojemanje *èloveštva* - odnos obèinstva do lastnega arhetipa duh/telo, kot ga razumejo gledalci po konèanem performansu.

V javnem pogovoru z umetnikom, ki je bil samo *rahlo povezan* s svojim telesom, se je razkrila osebna izkušnja razloèevanja duha od telesa - nekaj, kar v Newtonovem vesolju ni bilo mogoèe, ki je bila zelo presenetljiva. Tukaj objavljamo skrajšano razlièico zapisa tega pogovora.

Živjo, drR ... pravkar se vraèam s krajšega plutanja v popolni sprostitvi in sem zelo sreèen, saj sem (konèno) našel hrano v prahu, o kateri že ves èas sanjam. Ne bom našteval sestavin, saj drugaèe ne bom na voljo tvojim preiskoooovaaaanjemmmm.

Živjo, Svar. Vem, da zmoreš projicirati svojo zavest mimo svojega telesa. Kako bi opisal to svojo nadarjenost in kako se zaradi tega poèutiš?

To je nekakšno potovanje, ki nima niè skupnega s hojo, nogami, telesnostjo, neèim navpiènim ali ritmom. Nobenega takšnega *obèutka* ni - popolnoma si osvobojen telesne mase. Zunanje okolje zaznavamo kot ozraèja/energije in molekularne gostote se zdijo kot svetlobna/meglena/zvoèna jakostna polja. Kot bi deloval (pod)zavestni pilot. To

and practice meditation in order to harmonise their physical energies with their mental ones.

Limited by our prejudices of the possibility offered by the scientific Newtonian worldview, esoteric states of existence are often dismissed as trickery, deception, or fantasy and altered states of being such as levitation are dismissed.

As part of *the mass alien abduction experiment*, I set out to expose the limitations of scientific models and observations and reassess the understanding of *humanity* - the relationship of the audience to their own subjective mind/body archetype - understood by the audience after the performance.

In an interview with an artist who was *loosely attached* to his body, the subjective experience of dissociating the mind from the body - something deemed impossible in the Newtonian universe - was revealed, with some surprising revelations. This is an abridged version of the transcript of the interview.

Hello drR... I'm back from a brief floating-moment at cloud- relax, and very happy because I have found (at last) the powdered food of my dreams ... I won't list the ingredients or else I won't be able to respond to you probingggzzz...

Hello Svar. I know that you are able to project your consciousness beyond your body. What is the talent that you have and how does it make you feel?

It is a kind of travelling which has nothing to do with walking, with legs, gravity, verticality, or rhythm. There is no *feeling* as such - one is totally free of physical substance. One's perception of environmental surroundings records atmosphere/energy, and molecular densities appear as light/fog/sound force fields; there is a (sub)conscious pilot operating, which I can only liken to when we sometimes direct

lahko primerjamo samo s tem, ko se nam zgodi, da usmerjamo svoje lastne sanje. Strah - ker je vse skupaj prviè precej èudno in mogoèno - ali motnje na telesnem nivoju, na katerem poèiva prazno telo, takoj ustavi doživljanje. Precej ljudi je od lebdenja in opazovanja lastnega telesa od zgoraj navzdol doživelo nenadno travmo ali navidezno smrt... *astralno potovanje* ali *astralna projekcija* je podobno doživetje, vendar ima bolj opraviti s svobodno izbiro, dogodivšèino in ne s travmo.

Ali naj bi bilo po tvojih prièakovanjih tako tudi umiranje?

Tega pa res še ne vem - dobro vprašanje! Smrt, èeprav pri tem ni dosti izbire, je navsezadnje zapleteno povezana z življenjem in je enaka konstantna sila kot rojstvo. Ko sem bil star petnajst let in sem se uprl nenadnemu zdrsu - moèni magnetni privlaènosti k brezteže nostnemu prelivanju barv - sem doživel navidezno smrt. Ko bom umrl, bom postopoma postajal neviden in na koncu popolnoma izginil ... s planeta Zemlje namreè.

Kaj bi svetoval vsem, ki jih zanima astralno potovanje. Kako naj se ga lotijo?

Dobro naj razmislijo o vsem, pozanimajo se naj o njem iz različnih virov. To si je treba zares želeti, se uskladiti z željo, na poseben naèin pripraviti telo in duha za taka potovanja. Doseèi je treba doloèeno raven sprostitve, ki spoji dihanje, umirjeni duh, varnost, želje in voljo po pohajkovanju.

Nam lahko opišeš svojo izkušnjo *sposojanja*?

To je nekaj drugega! To ni bilo prostovoljno doživetje; prišlo je brez opozorila ali povabila in dogajalo se je brez nadzora.

Spremenjena stanja biti, kot je na primer *sposojanje* ali izvenzemeljska ugrabitev, kot je opisoval umetnik, je pogosto opisan pojav. To je nasilna ugrabitev oseb, ki jo izvajajo neèloveški eksperimentatorji.

our own dreams. Fear (since it is strange and powerful at first) or a disturbance on the physical plane where the vacant body rests, would immediately halt the experience. There are several accounts of people from who have experienced sudden severe shock, or near-death of floating above one's own body and seeing it from above ... *astral travelling* or *astral projection* is similar, however, it is to do with choice, adventure, and not trauma.

Is it how you would expect dying to be?

I really do not know yet - good question! Death, though you have little choice in the event, is so inextricably bound to life after all and as a force it is as constant as birth - I had a near-death experience when I was fifteen and I resisted a blissful slipping - a powerful magnetic pulling towards weightless iridescence. I guess when I die; I will gradually become invisible and then vanish completely... from planet earth I mean...

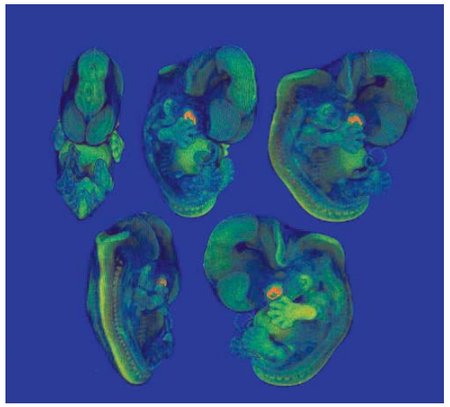
How would you advise someone else how to go about astral travelling?

Think about it, find out about it from wherever you can. You must want to do it, get tuned in, prepare your body and your mind for it in your own way. One has to achieve a particular level of relaxation, which is a combination of breathing quiet mind, security and the desire, and will to roam.

Describe your *borrowing* experience.

That was different! It was non-voluntary and without any warning or invitation, and with no control.

Altered states of being, such as the *borrowing* or alien abduction that the artist described is increasingly reported. It is the forced removal of a person by non-human experimenters. These aliens return them to their original location after their ordeal, frequently with little or no re-



Dr. R. Armstrong: Embryos, 1996/
Dr. R. Armstrong: Zarodki, 1996

Vesoljska bitja jih nato vrnejo na isto mesto, potem ko je preizkus konèan, ne da bi se te osebe kaj dosti spomnile celotnega do□ivetja. Okoli štiri milijone Ameriècanov zatrjuje, da so jih ugrabila vesoljska bitja.

Zelo znaèilen primer ugrabitve je niz ponavljajoèih se do□ivetij, ki se odvijajo skozi celotno posameznikovo □ivljenje, pojavljati pa se zaènejo □e v mladosti.

Ugrabitve so nekoè opisovali kot dogajanja v treh stopnjah. Prva se imenuje *prvinska izkušnja*, ko je telo posameznika podvr□eno nasilnemu preiskovanju, kot je sondiranju in pregledovanju vsega mogoèega. Mo□gane ugrabljenih oseb so presneli, morda so jim celo vzeli vzorce tkiv ali jim z boleèimi ginekološkimi in urološkimi posegi odvzeli tudi jajèeca ali spermo.

V naslednji stopnji, *drugotni izkušnji*, je osebo preiskala teleskopska naprava, ki jo nekateri opisujejo kot sondo z velikim oèesom. Ob neprekinjenem opazovanju so bile ugrabljene osebe podvr□ene nasilnim prizorom, perverznim spolnim sooèanjem in èustveno prizadetim stanjem.

Zadnja stopnja, *tretja izkušnja*, se pojavi, ko jih potopijo pod vodo ali prisilijo v spolni odnos z drugimi ugrabljenimi osebami. Nekateri celo zatrjujejo, da so imeli spolne odnose z vesoljskimi bitji samimi in pri naslednjih ugrabitvah so jim celo pokazali njihove zapušèene, èloveku podobne, nenavadne *otroke*.

Veèina ugrabljenih oseb skuša potlaèiti spomine na sreèanja z izvenzemeljskimi bitji. Telesne □alitve jih prizadenejo in zmedejo, saj so

collection of the experience. Around four million Americans claim they have been subjected to alien abduction type experiences.

A typical case of abduction is a series of recurring experiences that occur throughout a person's life, starting when they are young.

Abductions have sometimes been described as having three different stages. The first stage is called the *primary experiences* where the person's body is subjected to intrusive examinations being probed and poked everywhere. The abductees' brains are scanned, and they may even have samples of tissue, or their eggs or sperm extracted from them that may involve painful gynaecological or urological experiments.

During the next stage, the *secondary experiences*, telescopic machines, some of which are described as having probes with a giant eye, examine the person. Under constant surveillance, the abductees are subjected to violent scenes, perverse sexual encounters, and emotionally distressing situations.

The final stage, the *tertiary experiences* occurs when the abductees are forced under water or coerced into sexual encounters with other abductees. Some abductees have reported to have sex with the aliens themselves and during later encounters, have been shown their waif-like, humanoid, alien *children*.

The majority of abductees appear to repress their memories of the alien encounters. Although these physical insults are disturbing for the abductee who may experience real physical traumas because of the investigations, such as scars and skin marks, the alien experiments seem to be deliberate, following an unknown plan.

In contrast to a *typical*, individual abduction scenario, the audience at the ICA was awake and not deprived of their memories of a discussion

morda doživeli prave telesne poškodbe zaradi preiskav, na primer brazgotine ali kožna znamenja; kljub temu so poskusi izvenzemeljskih bitij videti premišljeni in kot da sledijo nekemu neznanemu naèrtu.

V nasprotju z ugrabljenimi posamezniki so bili gledalci na Inštitutu za sodobne umetnosti (ICA) v Londonu budni, njihov spomin je v najveèji meri deloval, poslušali so pogovore strokovnjakov, ki so predavali o *zgodovini* èloveštva iz različnih zornih kotov: verskega, informacijsko-tehnološkega, medicinskega in psihološkega.

Potem ko so gledalci preuèili dokaze, vključno s pogovorom z ugrabljenim umetnikom v živo, so tajno volili in **se izrekli za versko razlago èloveštva**.

Za zahodno mesto je ta zaključek dokaj presenetljiv, saj trenutni svetovni nazor temelji na znanstvenih konceptih, ki odražajo trajno, predvidljivo, trdno Newtonovo vesolje. Šele pred kratkim smo namreč odkrili kvantno fiziko in še vedno nismo uspeli dojeti *logike*, ki se skriva za nerazumnim obnašanjem èasa in materije, ki velja tako za èloveško kot tudi za vesoljsko zgradbo.

Znanstveni dogmatiki prièakujejo, da bodo njihova življenja zaznamovana s predvidljivimi dogodki, zato so zbegani, ko v primeru izvenzemeljske ugrabitve ne morejo najti nobene nedvoumne ali *razumske* razlage.

Naravna ali prava telesna zgradba se vse bolj postavlja pod vprašaj zaradi velikega števila tehnik, ki lahko spremenijo sestavne dele mehanskega telesa. Posledièno se v tem èasu velikih tehnoloških sprememb pojavlja vrsta posebnih definicij. Mnogo nenavadnih ter protislovnih opisov izpod peres posameznikov nastaja o tem, kaj naj bi èloveštvo bilo. Najstarejše dogme so tiste, ki prevladajo tudi v èasih velikih sprememb ...

"Definicija èloveka mi je kar sama odzvanjala v glavi... in vsaka noga bo

of a panel of experts speaking from a religious, information technology, medical and psychological perspective on what humanity *was*.

Having seen the evidence, including the live interview with the artist abductee, the ballot was unanimous - **the religious definition of humankind was preferred**.

This is surprising in a Western city, whose current worldview is based on scientific concepts that reflect a permanent, predictable, solid, Newtonian universe. We have only relatively recently discovered quantum physics and have not yet grasped the *logic* behind the irrational behaviour of time and matter, which applies to the constitution of our bodies as much as it does to the abstractions of the universe.

Scientific dogmatists expect their lives to be characterised and punctuated by predictable events and are therefore bewildered when, as in case of an alien abduction, no linear or *rational* explanation can be given.

The *naturalness* or true composition of human form is currently under question due to the large number of techniques that can alter the arrangement of the building blocks of the mechanical body. As a result, a variety of idiosyncratic definitions emerge and individual subjects hold many bizarre, inconsistent portraits of what humanity may be in this moment of great technological change. The oldest dogmas are the one that prevail in such a time of change ...

"The Definition of Man recited itself in my head... and each leg shall be jointed twice and have one foot, and each foot five toes, and each toe shall end with a flat nail..." and so on, until finally: "And any creature that shall seem to be human, but is not formed, thus is not human. It is neither man nor woman. It is a blasphemy against the true Image of God, and hateful in the sight of God."
...From The Chrysalids, John Wyndham, 1953.

Dr. Rachel Armstrong: Monster, 1996/
Dr. Rachel Armstrong: Pošast, 1996

imela dva sklepa in eno stopalo, in vsako stopalo pet prstov, in na konici vsakega prsta bo plošèat noht..." in tako naprej, dokler: "In vsako bitje, ki bo videti èloveško, a ne bo prav izoblikovano, ni zares èloveško. Ni ne moški ne ženska. To je bogokletno, uperjeno zoper pravo boljo podobo in sovražno v boljih oèeh."
...iz dela Bube (*The Chrysalids*) Johna Wyndhama, 1953.

Veèje religije obljubljajo vsem, ki si to zaslužijo, posmrtno življenje. Nasprotno pa znanost postavlja zahtevo po telesni trajnosti. Ne glede na napredek pri preoblikovanju telesa, ko išèemo z uporabo izpopolnjenih medicinskih tehnik nesmrtnost, je èloveško telo podvrženo nenehno trajajoèemu, veèjemu evolucijskemu razvoju. Še do nedavnega se je zdelo popolnoma nemogoèe razmišljati o nekaterih naèinih ohranjanja èloveškega telesa. Ljudje na primer spravljajo svoja telesa v velikanske zazmrzovalne posode v upanju, da jih bodo obudili k življenju in jih popravili nekoè v prihodnosti s pomoèjo ustrezne tehnologije, t.j. tehnike, ki jo imenujemo *krionika*.

Ne glede na vse skupaj pa bo evolucija vsekakor dajala prednost preživetju najbolj prilagojenim èloveškim bitjem. Prav tisti, ki se okolju najhitreje prilagajajo, ali tisti, ki bodo preživeli v prihodnosti, trenutno živijo nenavadno kaotièna življenja. Izdelujejo èudna/nerazumljiva fluidna dela ali celo dozorevajo v bolnišnicah kot generacija kiborgov (križanci med ljudmi in stroji) in neke vrste ameb, da bi tako ustvarili podobe in otipljive možnosti za potencialno poèloveško obdobje.

The dominant religions promise an after-life following the conquest of death for the deserving. In contrast, science requires bodily permanence. Despite advances in bodily redesign in the search of immortality using innovative medical techniques, the human body is also part of an ongoing, larger evolutionary process. The perceived permanence of the human body is changing in ways that were previously deemed impossible. For example, people are storing their bodies in huge freezing vessels in the hope that they will be revived and restored at some time in the future by the appropriate technology, a technique called *cryonics*.

By whatever means it takes, evolution will favour the survival of the most adaptable humans. Currently, the self-modifiers or future survivors are living strangely chaotic lives, producing bizarre/incomprehensibly fluid works and even maturing in hospitals as a generation of cyborgs (human-machine hybrids) and proteans, to create the images and tangible possibilities of a potential post-human era.

It is therefore unlikely that an absolute definition of humanity can apply for all individuals in a real life situation. Objectively, humans may be able to admit that as products of Nature they are not perfect. They may even conceded that, in theory, their bodies are badly designed, adapt slowly to change, and are ultimately mortal.

The evasive definition of *humanness* may be due to the current evolutionary forces that are currently shaping the human body and emotions. We are discovering new untapped possibilities that fall between the traditional academic and institutional disciplines.

Natural laws in combination with man made technologies and mystical alien forces are compelling humans to change. Concepts such as levitation and astral travelling are now possible. Perhaps that this what is happening by the increasing number of reported alien abductions, where a growing community is discovering ways of accessing

Tako je skoraj nemogoèe, da bi absolutna definicija èloveštva lahko veljala za vse posameznike v resnièni ivljenjskih okolišèinah. Nedvomno so si èloveška bitja sposobna priznati, kako kot izdelki narave niso popolna. Lahko da so, teoretièno, celo dopustili to, da so njihova telesa slabo narejena, se poèasi prilagajajo na spremembe in so neizogibno minljiva.

Dvomljiva definicija *èloveškosti* morda izvira iz novejših evolucijskih sil, ki trenutno oblikujejo èloveško telo in èustva. Odkrivamo tudi nove, še neodkrite mo nosti, ki se umešèajo med tradicionalne akademske in institucionalne stroke.

Naravni zakoni v povezavi s tehnologijo, ki jo je ustvaril èlovek, in mistiènimi izvenzemeljskimi silami silijo èloveška bitja k spremembam. Koncepti, kot so lebdenje in astralna potovanja, so zdaj e mogoèa. Morda je vse to povezano z narašèajoèim številom prijavljenih izvenzemeljskih ugrabitev, s èimer rastoèa skupnost odkriva naèine, kako doseèi kolektivno èloveško zavest, in opazuje èloveško telo v povezavi s prihodnjimi vrstami èlovekovih potomcev.

Prav verjetno je, da ta nenavadna sreèanja razkrivajo, kako je sodobno sprejemanje èloveškosti preveè nasprotujoèe si, da bi pre ivelo, in da prihajajo èasi, ko bomo spoznali, da smo postali vesoljska bitja in smo sposobni takih dejanj, o katerih se nam nikoli niti sanjalo ni.

Navsezadnje se lahko dogodi, da si bomo za eleli zanikati ta pritisk, ali pa se bomo vsemu skupaj uprli, a kaj ko se vse e dogaja. Lahko e prepoznamo prihodnje naslednike homo sapiensa v svoji kulturni podzavesti. To bitje z veliko glavo, oèmi v obliki mandljev, ki je tehnološko zelo napredno, sposobno premagati te nost in ki je brezspolno, objektivno, razumno, jasnovidno, veèjezikovno in sporno neminljivo, lahko postane naš naslednik. To je naš izvenzemeljski gostitelj mno iènih ugrabitev, nezemeljski Gray!

the collective human conscious and is viewing the human body in relationship to a future species of human descendants.

It is possible that these strange accounts are revealing that our modern notion of humanness is too contradictory to survive and that there will be a time when we realise that we have actually become alien and are capable of things that we never dreamed possible.

We may wish to deny this pressure or to resist it but it is happening now. We may already recognise a future successor to the Homo sapiens in our cultural subconscious mind. This creature with a large head, almond shaped eyes, which is technologically sophisticated, able to defy gravity, genderless, objective, rational, psychic, multilingual and debatable immortal may be our successor... It is our alien host of the mass abduction, the extra-terrestrial Gray!

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Dr. Rachel Russell (dekliški priimek Armstrong) je avtorica ZF estetike (Sci Fi Aesthetics) in Vesoljske arhitekture (Space Architecture), objavljenih pri zalo□bi J Wiley & Sons, televizijska voditeljica, predavateljica na The Bartlett School of Architecture, multimedijska producentka, zastopnica za umetnike in zdravnica, ki dela specializacijo na podroèju evolucije èloveštva, ki se dogaja zaradi "nenaravnih posegov". Jeseni 2000 bo izšel roman z naslovom Grayeva anatomija pri zalo□bi Serpents Tail (info@serpentstail.com).

SUSPENDED BODIES
UNCERTAIN, ANXIOUS AND OBSOLETE

Stelarc

THE MOST SIGNIFICANT PLANETARY PRESSURE IS NOT THE GRAVITATIONAL PULL BUT THE INFORMATION THRUST. THE BODY MUST BURST FROM ITS BIOLOGICAL, CULTURAL AND PLANETARY CONTAINMENT. IT MUST DESYNCHRONIZE AND DEPART. ONCE THE BODY ATTAINS PLANETARY ESCAPE VELOCITY, IT WILL BE LAUNCHED INTO POST-EVOLUTIONARY TRAJECTORIES. THE BODY BECOMES A PROJECTILE, PROPELLED BY ITS DESIRE NOT MERELY TO AFFIRM ITSELF BUT TO BECOME SOME OTHER. OUR STRATEGY CAN NO LONGER BE TO PERPETUATE THE SPECIES BUT TO FOCUS PHYSICAL CHANGE ON EACH INDIVIDUAL. ALTHOUGH IMPLODING, MINIATURIZED TECHNOLOGY REINTEGRATES AND AMPLIFIES THE INDIVIDUAL, IT DISINTEGRATES THE SPECIES. THE DILEMMA OF THE MIND-BODY SPLIT IS OVERTAKEN BY THE TRAUMA OF THE BODY-SPECIES SPLIT. THE BODY MUST DIVERSIFY AND FORM AND FUNCTION. IN SPLITTING FROM THE SPECIES, THE BODY IS NO LONGER A SCHIZO BODY, BUT A SPLIT BODY. A BODY WITH A SPLIT PHYSIOLOGY. A BODY OF FRACTAL FLESH THAT IS BOTH POSSESSED AND PERFORMING. A BODY THAT IS A HOST FOR REMOTE AND MULTIPLE AGENTS. NOT AN ALIEN BODY, BUT A BODY THAT IS ALIEN TO ITSELF. THROUGH ITS SUCCESS IN MAKING TECHNOLOGY, ACCUMULATING INFORMATION AND UNPLUGGING ITSELF FROM THE PLANET, THE BODY HAS CREATED POST-EVOLUTIONARY PRESSURES, WHICH THREATEN THE SURVIVAL OF THE HUMAN SPECIES. IN ADDITION, PERHAPS NEITHER REMAINING HUMAN NOR SURVIVING AS A SPECIES IS OF ANY FURTHER IMPORTANCE.

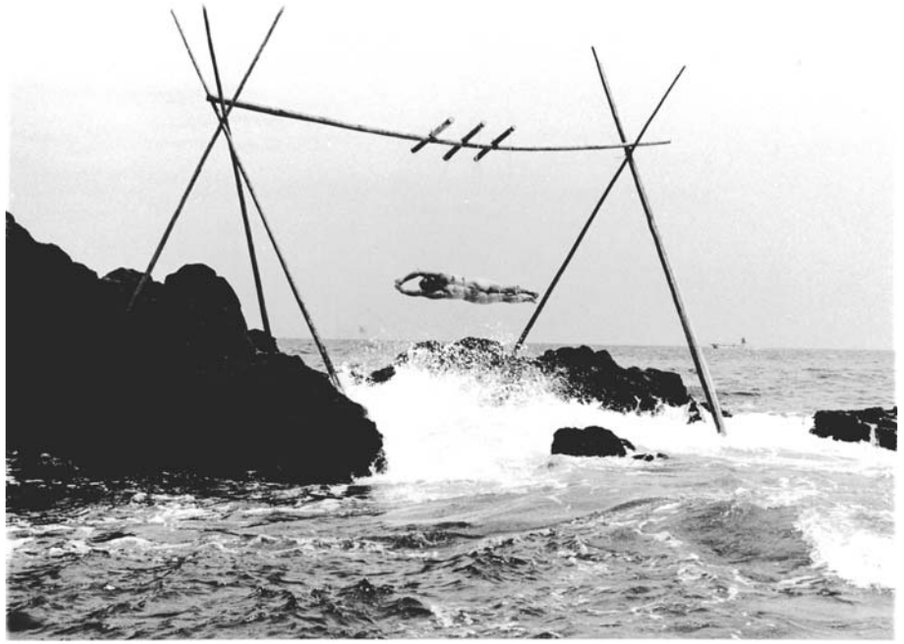
OBEŠENA TELESA
NEGOTOVA, PRESTRAŠENA IN ODVEÈNA

Stelarc

NAJPOMEMBNEJŠI PLANETARNI PRITISK NI TE□NOSTNA PRIVLAÈNOST, TEMVEÈ INFORMACIJSKI NABOJ. TELO MORA IZRASTI IZ SVOJE BIOLOŠKE, KULTURNE IN PLANETARNE VZDR□NOSTI. MORA SE ODCEPITI IN ODITI. KO BO ENKRAT DOSEGLO UBE□NO HITROST PLANETA, BO IZSTRELJENO NA POEVOLUCIJSKE POTI. TELO BO POSTALO IZSTRELEK, KI GA □ENE LASTNA □ELJA, NE SAMO ZATO, DA BI NAŠLO POTRDITEV SAMEGA SEBE, TEMVEÈ ZATO, DA BI POSTALO NEKAJ DRUGEGA. NAŠA STRATEGIJA NE MORE BITI SAMO VEÈNO OHRANJANJE VRSTE, TEMVEÈ OSREDOTOÈENJE NA FIZIÈNO SPREMEMBO VSAKEGA POSAMEZNIKA. ÈEPRAV VASE ZAPRTA, POMANJŠANA TEHNOLOGIJA VZPOSTAVLJA IN KREPI OSEBNO, HKRATI S TEM POVZROÈA RAZPAD VRSTE. ZADREGO, KI SE POJAVI OB RAZCEPU TELO - DUH, NADOMESTI DUŠEVNI PRETRES OB RAZCEPU TELO - VRSTA. TELO SE MORA SPREMINJATI, OBLIKOVATI IN DELOVATI. PRI RAZCEPU OD VRSTE TELO NE PREDSTAVLJA VEÈ SHIZO TELESA, TEMVEÈ RAZCEPLJENO TELO. TELO Z RAZCEPLJENO FIZIOLOGIJO. TELO FRAKTALNEGA MESA, KI JE V OBLASTI IN HKRATI NASTOPAJOÈE. TELO, KI GOSTI ODDALJENE IN MNOGOVRSTNE ZASTOPNIKE. NE TUJE TELO, TEMVEÈ TELO, KI JE ODTUJENO SAMEMU SEBI. PRI VZPOSTAVLJANJU TEHNOLOGIJE, ZBIRANJU INFORMACIJ IN ODKLOPU OD PLANETA JE TELO USTVARILO POEVOLUCIJSKE PRITISKE, KI OGRO□AJO OHRANITEV ÈLOVEŠKE VRSTE. IN MORDA NE OHRANJANJE ÈLOVEŠKOSTI NE PRE□IVETJE VRSTE NIMA VEÈ PRAVEGA POMENA ...

Stelarc: Sitting/Swaying: Event for Rock Suspension/
Sedeti/pozibavati se: dogodek za zibajoèe obešenje,
Galerija Tokiwa, Tokio 1980.

Although the suspensions deal with the physical difficulty of the body strung up they have neither religious intent (transcending the body) nor the yearning for shamanistic empowering. They are realised with neither the intention of initiation rites nor the S&M exploration of pain and pleasure. What can be admitted though is that a painful experience does collapse the convenient distinction between the mind and body. When overwhelmed with pain you perceive yourself as a physical body that experiences, rather than a self that thinks and objectively evaluates in some kind of disconnected way. Suspended and in stress the anonymous body realises its obsolescence. The anxiety, the uncertainty that accompanies the feeling of



Stelarc: Sea Suspension/Morsko obešenje

Èeprav obešenja izpostavljajo fizièno te□avo napetega telesa, niso izvedena iz verskih razlogov (prestop v nadèutnost) ali šamanistiène usposobljenosti. Nikoli niso bila uprizorjena kot obredi posvetitve ali sado-mazo izrabe boleèine in u□itkov. Potrdimo lahko samo, da boleèa izkušnja èisto zares ruši udobno prepoznavnost med telesom in duhom. Ko nekoga preplavlja boleèina, se sprejema kot fizièno telo, ki do□ivlja izkustvo in ne kot jaz, ki odcepljeno razmišlja in se objektivno vrednoti. Šele neko obešeno telo, ki je pod pritiskom, prepozna svojo odveènost. Strah, negotovost spremlja obèutek ranljivosti. Golo in tiho telo je v svojem nepremiènem obešenju podoba navidezne smrti. Telo pod vplivom

being vulnerable. The nude and silent body at least in its static suspensions is an image of suspended animation. An anaesthetized and pacified body that is obsolete but not yet extinct. That has desires but does not express them. That feels pain but remains silent and stoic. A body that neither thinks nor shows emotions. A suspended body is a zombie body. It does not think because it does not have a mind of it's own nor any mind at all in the traditional metaphysical sense. To be suspended is to be between states. To be neither one nor the other. To be in suspense is neither being able to participate in the present nor to anticipate the outcome ...

THE BODY IN SPACE

The body in space is both a primal yearning (we dream about floating and flying) and a contemporary reality with astronauts in Zero G. Between the dream and the actuality, between fantasy and gravity. To be suspended is literally to be between states. Floating expresses effortlessness, weightlessness. Suspension expresses the tension of the push and pull between states. However, to be suspended in a 1G gravitational field means to be in a state of trauma, as the stretched skin supports the weight of the body. The stretched skin can be seen as a gravitational landscape - what it takes the body to be suspended. The stretched skin is the physical penalty for suspending your body. The stretched skin authenticates the suspension of the body in a planetary gravitational field. The body becomes part of its own support structure.

THE STRETCHED SKIN IS BOTH A MANIFESTATION OF THE GRAVITATIONAL PULL AND OF RESISTING IT, OF SYMBOLICALLY OVERCOMING IT. IT IS PROOF OF THE BODY'S UNNATURAL POSITION IN SPACE AND IT PAYS THE PHYSICAL PENALTY FOR BEING SUSPENDED. THE BODY HAS BEEN TRANSFORMED INTO A 1G GRAVITATIONAL LANDSCAPE.

anestetika in umirjeno telo, ki je odveèno, a še ni odmrlo. Telo, ki še ima želje, a jih ne izraža. Ki obèuti boleèino, a ostaja tiho in stoièno. Ne razmišlja ali izraža èustev. Obešeno telo je zombi telo. Ne razmišlja, ker nima svojega duha ne kateregakoli drugega v metafiziènem smislu. Biti obešen je biti med stanji. Biti ne eno ne drugo. Biti obešen je nezmožnost udeležiti se sedanjosti ali predvidevati izid ...

TELO V PROSTORU

Telo v prostoru predstavlja prvinsko hrepenenje (sanjamo na primer o tem, da lebdimo in letimo) in sodobno realnost z astronavti v brezteènosti. Med sanjami in resnièno stjo, med domišljijo in teènostjo. Viseti pomeni dobesedno biti med stanji. Lebdenje izraža nenapornost, lahkotnost. Visenje izraža napetost potiska in privlaènosti med stanji. Toda viseti v teènostnem polju 1G pomeni biti v travmatiènem stanju, medtem ko napeta koža podpira telo celega telesa. Napeto kožo lahko vidimo kot gravitacijsko pokrajino - kaj se zgodi s telesom, ko visi. Takšna koža je fizièna kazen za to, ker smo obesili svoje telo in hkrati znak pristnosti za obešeno telo v planetarnem polju teènosti. Telo postane del svoje lastne podporne strukture.

NAPETA KOŽA JE HKRATI ODRAZ TEŽNOSTNE PRIVLAÈNOSTI, NJENEGA ODPORA IN NJENE SIMBOLIÈNE ZMAGE. JE DOKAZ O NENARAVNEM POLOŽAJU TELESA V PROSTORU, KI PLAÈUJE FIZIÈNO KAZEN, KER VISI. TELO SE SPREMENI V 1G TEŽNOSTNO POKRAJINO.

OD JERMENOV DO KAVLJEV

Zgodnji primeri obešenja so bili izvedeni z jermeni in vrvmi - v stanju mirovanja in gibanja. Performans, ki je dober primer iz tega obdobja, je bil v Galeriji Pinacotheca v Melbournu, kjer je telo viselo vzdolžno kot del

FROM HARNESS TO HOOKS

The early suspensions were done with harness and ropes - both in static and kinetic ways. A performance that exemplified this period was done at Pinacotheca Gallery in Melbourne where the body was suspended upright as part of an installation of hanging rocks and an uprooted tree with a laser horizon line connecting the visual elements. In the performance at the German Cultural Centre in Tokyo, the body was suspended from a 6-metre diameter balloon. In both performances body signals like brainwaves, heartbeat, blood flow and muscle signals were amplified to construct an acoustical landscape that immersed the audience in the changing physical and psychological condition of the body. However, these suspensions were visually cluttered with all the ropes and harness. It was providing more a support of the body rather than a convincing image of suspension. The decision to string the body up with hooks inserted into the skin was to prove an elegant but physically traumatic series of experiences ...

THE SECOND SPIN WAS MUCH MORE OVERWHELMING. AT FIRST THE BODY WAS TOO AMAZED AT THE MECHANICS OF WHAT WAS HAPPENING - IT WAS SPINNING, YET OBJECTIVELY ASSESSING. NOW ITS THOUGHTS WHIRLED AS WELL AS ITS BODY. FLASHING LIGHTS PULSED BY AND THE BLURRED PEOPLE PRODUCED A VISUAL BLABBER, WHICH WAS AMPLIFIED BY THE SILENCE OF THE SPACE. WHEN THE SPINNING SUBSIDED THE BODY FELT FAINT, YET THE MIND WAS CLEAR, ITS THOUGHTS FRAMED BY THE WOODEN SUPPORT STRUCTURE. (Event for Stretched Skin: Spin/Swing, Tokiwa Gallery, Tokyo 1977).

STRETCHED SKIN

The 25-suspension events with insertions into the skin were performed over a period of 13 years, between 1976 and 1988. There was

instalacije iz viseèih kamnov in drevesa, postavljenega na glavo s koreninami kvišku, in lasersko linijo horizonta, ki je povezovala vse obešene elemente. Drugi primer se je zgodil pri Nemškem kulturnem centru v Tokiju, ko je telo viselo z balona s 6-metrskim premerom. V obeh performansih so bili telesni signali, kot so mo□ganski valovi, srèni utrip, pretok krvi in mišièni impulzi ojaèeni, da bi tako z njimi zgradili akustièno pokrajino, ki je omogoèala v□ivetje obèinstva v spremenljivo fizièno in fiziološko stanje obešenega telesa. Vsa ta obešenja so bila vizualno prepletena z vrvmi in jermeni. Ti so slu□ili podpori telesa in niso ustvarjali preprièljive podobe obešenja samega. Da bi dosegli eleganten, èeprav fizièno travmatièen izkustveni niz, smo se odloèili, da bomo pripeli telo s kavlji, prebodenimi skozi ko□o...

DRUGI OBRAT JE BIL MNOGO SILNEJŠI. NAJPREJ TELO NI BILO USKLAJENO Z MEHANIKO DOGAJANJA SAMEGA - VRTELO SE JE, A HKRATI OBJEKTIVNO BELE□ILO PODATKE. MISLI IN TELO SO SE VRTELI. BLEŠÈEÈA SVETLOBA JE UTRIPALA IN KOMAJ VIDNI LJUDJE SO POVZROÈALI VIZUALNO MIGOTANJE, KI GA JE OJAÈILA TIŠINA PROSTORA. KO SE JE VRTENJE UMIRJALO, JE TELO ZAÈUTILO UTRUJENOST, TODA DUH JE BIL ÈIST, NJEGOVE MISLI SO BILE UJETE V LESENO PODPORO STRUKTURE. (Dogodek za napeto ko□o: obrat/nihaj, Galerija Tokiwa, Tokio 1977)

NAPETA KO □ A

V obdobju 13 let, tj. od 1976 do 1988, je bilo uprizorjenih 25 dogodkov obešenja s prediranjem ko□e. Pravzaprav je bil zaèetni namen izvesti samo eno obešenje. Toda potem ko smo obesili telo vodoravno s smerjo pogleda navzdol, smo spro□ili niz 4 performansov, pri katerih se je telo vrtelo v prostoru. Obrnjeno navzdol, vodoravno navzgor in navpièno v vzravnanem polo□aju. Ne samo da je telo zavzemalo razliène polo□aje, bistveno je bilo, da pri visenju ni mirovalo. Vrtelo se je, nihalo, dvigovalo, obraèalo in gibalo. Ti performansi so se imenovali dogodki za napeto ko□o - uresnièitev tega, da je obešeno telo v te□nost-

only the initial intention of doing one suspension. However, having hung the body horizontally facedown it triggered a series of 4 performances rotating the body in space. Positioned upside down, horizontally face-up and vertically upright. Not only was the body in different positions but no longer static in suspension. It was spun, swung, hoisted, rotated, and propelled. They were titled as events for stretched skin - the realisation that the body suspended in a 1G gravitational field pay the physical consequences for its ideas. The skin becomes part of the body's support structure, it's stretching generates what can be described as a gravitational landscape. This is the authentication of the action of suspending a body with mass and weight in the 1G gravitational field.

IN THE EVENT, THE CONNECTION BETWEEN THE SUSPENDED BODY MASS AND THE CEILING WAS SEVERED. THE BODY WAS SUSPENDED FROM 18 EQUALLY SPACED EYEBOLTS IN THE 4 SIDEWALLS. THIS PLACED A LOT MORE STRESS AND STRAIN ON EACH INSERTION POINT - THE SKIN WAS PULLED UP, OUT, AND TWISTED. THE BODY WAS ON THE VERGE OF PASSING OUT WHEN IT WAS LOWERED DOWN AFTER ONLY 60 SECONDS OF SUSPENSION.
(Event for Lateral Suspension, Tamura Gallery, Tokyo 1978).

STRUCTURAL SUSPENSIONS

An interest developed in suspending the body in structurally alternate ways. What was important in these events was the method in which the body was strung up. Event for Amplified Tension (Tenjo Sajiki, Tokyo 1979) had the body suspended and supported within a tensegrity icosahedron's structure. None of the poles of wood or the body were touching, everything was held together by the tension of the cables. With Pull Out/Pull Up: Event for Self-suspension (Tokiwa Gallery, Tokyo 1980) the body, in a sitting position, hoisted itself up by means of a 4:1 ratio pulley system. The skin was pulled out, the body

nem polju 1G plaèalo fiziène posledice za svoje ideje. Ko□a je tako postala del telesne podporne strukture, njeno raztegovanje povzroèa to, kar lahko opišemo kot te□nostna pokrajina. To je overitev dejanja obešanja telesa z maso in te□o te□nostnega polja 1G ...

DOGODEK JE IZPOSTAVIL POVEZAVO MED MASO OBEŠENEGA TELESA IN STROPOM. TELO JE VISELO Z 18 VIJAKOV Z ENAKIMI MEDSEBOJNIMI RAZDALJAMI, PRITRJENIMI V 4 STRANSKE STENE. TO JE POVZROÈILO DOSTI VEÈJI PRITISK IN NATEG NA VSAKO PREBODENO TOÈKO NA KO□I - KO□O JE RAZTEGNILO NAVZGOR, VEN IN JO ZVILO. KO SO TELO SPUSTILI NA TLA PO 60 SEKUNDAH, JE BILO NA ROBU ZAVESTI.
(Dogodek za obstransko visenje, Galerija Tamura, Tokio 1978).

KONSTRUKCIJSKO OBEŠENJE

Telesna obešenja so se razvijala z uporabo različnih konstrukcijskih naèinov. Kar je bilo pomembno pri teh dogodkih, je bila metoda, s katero je bilo pritrjeno telo. V Dogodku za ojaèeno napetost (Tenjo Sajiki, Tokio 1979) je bilo obešeno telo, podprto s posebno trdno konstrukcijo ikozaedra. Nobena od lesenih ali telesnih osi se ni dotikala druge, vse skupaj pa so dr□ale napete vrvi. V Izvleèi/povleèi: dogodek za samovisenje (Galerija Tokiwa, Tokio 1980) se je sedeèe telo dvignilo kvišku s pomoèjo škripca v razmerju 4:1. Ko□o je napelo, telo je dvignilo. Velik razkorak se je pojavil med obnašanjem (telo je samo sebe dvigovalo brez veèjega napora) in obèutenjem telesa (boleèino viseèega, 70 kg te□kega telesa). V Sedeti/pozibavati se: dogodek za zibajoèe visenje (Galerija Tokiwa, Tokio 1980) je bilo telo uravnote□eno s pomoèjo obroèa iz kamenja, pri èemer je vsak kamen slu□il eni prebodeni toèki v ko□i. Telo se je rahlo pozibavalo z ene strani na drugo in s tem ustvarjalo nakljuèen niz nihanj kamenja.

TELO S PREBODENO KO□O JE SEDELO NA TLEH, POD OBROÈEM KAMNOV, KI SO VISELI S STROPA, PRITRJENI NA VIJAKE Z VOZLI,

was pulled up. There was a split between what it was doing (effortlessly lifting itself) and what it was feeling (the pain of its suspended 70 kg body). Sitting/Swaying: Event for Rock Suspension (Tamura Gallery, Tokyo, 1980) counterbalanced the body's weight with a ring of rocks, one for each of the 18 insertion points into the skin. The body swayed gently from side to side setting up random oscillations in the rocks ...

THE INSERTIONS WERE DONE WITH THE BODY SITTING ON THE FLOOR, BELOW A HALO OF ROCKS, WHICH HAD BEEN SUSPENDED FROM EYEBOLTS IN THE CEILING WITH SLIPKNOTS. WHEN EVERYTHING WAS CONNECTED, THE CORDS WERE TUGGED, RELEASING THE ROCKS. AS THE ROCKS CAME DOWN THE BODY WENT UP. THE BODY STARTED TO GENTLY SWAY FROM SIDE TO SIDE, TRIGGERING RANDOM OSCILLATIONS OF THE RING OF ROCKS. EVERYTHING WAS IN MOTION, BALANCED AND BOUYANT. EVERYTHING WAS CONNECTED AND CONTAINED. THOUGHTS OF OBSOLESCENCE FLICKERED IN AND OUT OF THE SILENCE. THE TELEPHONE RINGS. MURMURS. DISTRACTIONS. SITTING, SUSPENDED AND ANXIOUS. (Sitting/Swaying: Event for Rock Suspension, Tamura Gallery, Tokyo, 1980).

SITE-SPECIFIC PERFORMANCES: INDOORS/OUTDOORS

The body is treated as a sculptural object in a spatial relationship with other objects and locations. The body is plugged into a certain site to energise the space and generate unexpected and surprising juxtapositions with other elements. The concern was to reintegrate the body with rocks, wood, water and wind. The body returns to interact with its primal elements, amplifying its elements. The Shaft Suspension, the Seaside Suspension and the Tree Suspension were examples of *site-specific* performances. In the Shaft Suspension, the body was hoisted up and lowered down a lift-well, which connected 5-

KI SE RAZVE EJO, KO POTEGNEMO KONEC VRVI. KO JE BILO VSE POVEZANO MED SEBOJ, SO ZATEGNILI VRVI IN S TEM SPROSTILI KAMENJE. KO SE JE KAMENJE SPUŠÈALO, SE JE TELO DVIGOVALO. HKRATI SE JE ZAÈELO RAHLO POZIBAVATI Z ENE STRANI NA DRUGO, KAR JE POVZROÈALO NAKLJUÈNA NIHANJA KAMENJA. VSE JE BILO V GIBANJU, URAVNOTE ENO. VSE JE BILO POVEZANO IN OBVLADLJIVO. MISLI O ODVEÈNOSTI SO MIGOTALE V IN IZ TIŠINE. TELEFON ZAZVONI. MRMRANJE. MOTNJE. SEDEÈE, OBEŠENO IN PRESTRAŠENO.
(Sedeti/pozibavati se: dogodek za zibajoèe obešenje, Galerija Tokiwa, Tokio, 1980).

SITE-SPECIFIC PERFORMANSI: NOTRANJOST/ZUNANJOST

Telo je obravnavano kot kiparski objekt v prostorskem razmerju do drugih objektov in namestitev. Pritrjeno je na doloèeno mesto, da bi okrepilo prostor in povzroèilo neprièakovane in presenetljive sklope z drugimi sestavnimi deli. Kot bi se telo ponovno zdru ilo s kame-njem, lesom, vodo in vetrom. Ponovno se vzpostavi s pomoèjo primarnih prvin, tako da jih ojaèi. Obešenje v jašku, Morsko obešenje in Drevesno obešenje so primeri *site-specific* performansov (performans v doloèenem prostoru, op. ur.). V Obešenju v jašku so telo dvignili in spustili po jašku za dvigalo, ki je povezoval 5 nadstropij. Majhna skupina povabljencev je lahko opazovala obešeno telo iz kleti, z vrha jaška ali tako, da so hodili po zgradbi in gledali, kako se je telo pomikalo med nadstropji. S skalnatega grebena pribli no 300 metrov od obale je telo viselo boèno, vzporedno z obzorjem, obr-njeno na morje. Veter je poèasi pozibaval telo in valovi, ki so se lomili ob obalo, so ga škropili. Kar nekaj dni je trajalo, da se je v Canberri našlo primerno drevo za visenje. Korenine so bile na površju in so odsevale strukturo vej, telo pa je bilo namešèeno ob vrveh, ki so bile privezane preko rogovil v vejah in pritrjene na korenine spodaj, tako da je nastal vtis napetosti med obešenim telesom in strukturo korenin...

floor level. A small group of invited people were able to view the suspended body from the basement looking up, the top of the shaft looking down or go up and down the building and see it emerging at every floor level. From an outcrop of rocks about 300 metres from shore, the body was suspended side-on, parallel to the horizon, looking out to sea. The body was swayed by the wind and was splashed by the crashing waves. It took several days to find a tree for the suspension in Canberra. The roots were exposed, mirroring the branch structure and the body was positioned by the cables that were strung over forks in the branches and tied to the roots below creating lines of tension between the suspended body and root structure...

STRETCHED BETWEEN WHAT IT NEVER WAS AND WHAT IT COULD NEVER BECOME; SUSPENDED BETWEEN THE INWARD PULL OF GRAVITY AND THE OUTWARD THRUST OF INFORMATION, THE BODY RETURNS TO THE TREE, ANXIOUS AND VULNERABLE AFFIRMING ITS PRIMAL ORIGINS, AMPLIFYING ITS OBSOLESCENCE. TERMINAL TRAJECTORY IS PLOTTED, AN ELEGANT EXIT IS ASSURED. THE BEGINNING IS RE-ENACTED, THE END IS PROCLAIMED. THE BREEZE IS BLOWING OVER AERODYNAMIC STRETCHED SKIN; THE BODY IS ATTAINING PLANETARY ESCAPE VELOCITY. THE BRAIN IS BURSTING FROM ITS GENETIC CONFINEMENT, HOVERING BETWEEN GRAVITY AND FANTASY, INTUITIVELY.
(Prepared Tree Suspension: Event for Obsolete Body No.6, Black Mountain, Canberra, 1982).

CITY SPACES

Suspending the naked and stretched body in such social and public places presented special problems. In 1984, The Mo David Gallery in East Village, NY sponsored a performance. Street Suspension was done without city or police permission. This necessitated doing the preparations in a 4th-floor room in private. A cable

RAZPETO MED TEM, KAR NIKOLI NI BILO, IN TEM, KAR NIKOLI NE BO MOGLO POSTATI, OBEŠENO MED NOTRANJO TE□NOSTNO PRIVLAÈNOSTJO IN ZUNANJIM NAVALOM INFORMACIJ SE TELO VRAÈA K DREVESU, PRESTRAŠENO IN RANLJIVO, DA BI POTRDILO SVOJ OSNOVNI IZVOR IN IZPOSTAVILO LASTNO ODVEÈNOST. SKRAJNA POT JE ZASNOVANA IN ELEGANTEN IZHOD JE ZAGOTOVLJEN. ZAÈETEK JE PONOVNO VZPOSTAVLJEN, KONEC JE JASEN. LAHEN VETER PIHA ÈEZ AERODINAMIÈNO NAPETO KO□O, TELO PRIDOBIVA UBE□NO HITROST PLANETA. MO□GANI KIPIJO IZ GENETIÈNE OMEJITVE IN INTUITIVNO OMAHUJEJO MED TE□NOSTJO IN DOMIŠLJIJO.
(Pripravljeno drevesno obešenje: dogodek za odveèno telo št.6, Black Mountain, Canberra, 1982).

MESTNI PROSTORI

Obešanje golega in napetega telesa v takih dru□abnih in javnih prostorih je predstavljalo poseben problem. Leta 1984 je galerija Mo David v East Villageu v New Yorku podprla performans. Ulièno obešenje je bilo uprizorjeno brez posebnega dovoljenje mesta ali policije. To je seveda pomenilo, da je bilo treba izpeljati priprave v 4. nadstropju privatnega stanovanja. Ko so telo obesili, so ga pritrdili na posebno konstrukcijo s škripcem, ki je omogoèala dvig skozi okno in nato poèasen spust po vrvi. Ustavili so ga pribli□no na polovici ulice. Dogodek, ki naj bi trajal pribli□no 30 minut, je prekinila policija po komaj 12 minutah. Kopenhagensko obešenje leta 1985 smo izvedli nad Kraljevim gledališèem. To je bil zelo odmeven performans, saj je bil del kopenhagenskega mednarodnega festivala in so ga zelo dobro predstavili obèinstvu. Za izvedbo je bilo potrebno dobiti dovoljenje festivalskega direktorja, Kraljevega gledališèa, Delavske zveze (ki je morala odobriti 2 èlanoma upravljanje z □erjavom) in policije. Na veliko preseneèenje je dovoljenje prišlo dan pred performansom. Na zaètku se je porodila ideja, da bi telo obesili s helijevim balonom. Ker nismo dobili prave pomoèi, smo se odloèili, da bo viselo z velikanskega □erjava, ki so ga

had been stretched to the building on the opposite side of the street. When the body had been hooked up, it was attached to a pulley structure, which allowed it to emerge through the window and roll along the cable stopping about halfway across the street. An event that was supposed to last for approximately 30 minutes was stopped by police after only 12 minutes. The Copenhagen suspension in 1985 occurred above the Royal Theatre. It was the most public performance as it was part of the Copenhagen International Festival and was well publicised. To do this at all meant getting permission from the Festival Director, the Royal Theatre, the Union (that had to allow 2 of its members to operate the crane) and the police. Surprisingly, permission was granted the day before the performance. Initially the body was to be suspended from a helium balloon, but when assistance fell through, it was decided to be hoisted up by a giant crane, which was being used to repair the Royal Theatre. Here the performance would be seen as choreography of the body in space. It would be pulled up from street level to a height of approximately 56 metres, shuttled to the end of the crane arm and then swung around 4 times through 180 degrees. The body was constantly shaking and its skin vibrating from the stiff breeze, sometimes swinging and sometimes spinning on its axis. This moving suspension lasted 30 minutes...

AS THE BODY PASSED FROM ONE FLOOR LEVEL TO ANOTHER OR FROM WINDOW TO WINDOW, IT EXPLODED INTO VIEW WHERE THE LIGHT STREAMED INTO THE SHAFT. IT WAS ALTERNATIVELY BRIGHTLY ILLUMINATED AND DISAPPEARING INTO THE DARKNESS. THE BODY COULD NOT BE MERELY HOISTED UP AND LOWERED DOWN BECAUSE PROTRUDING BEAMS NECESSITATED MANEUVERING WITH FINGERTIPS AND TOES AT EACH FLOOR LEVEL, ROTATING THE BODY FROM SIDE TO SIDE. THE EXPERIENCE WAS ONE OF PIERCING, OF PROBING THE COLUMN OF AIR CONTAINED IN THE SHAFT.
(Up/Down: Event for Shaft Suspension, Hardware Street Studio, Melbourne, 1980).

uporabljali za popravilo Kraljevega gledališèa. Performans bi bil videti kot koreografija telesa in prostora. Telo bi potegnili z ulice na višino 56 metrov, povlekli do roba ▯erjava in štirikrat zavrteli pod kotom 180 stopinj. Telo se je ves èas treslo, ko▯a je drhtela zaradi ostrega vetra, tu in tam je telo zanihalo in se zavrtelo okrog svoje osi. Premikajoèe se visenje je trajalo 30 minut...

KO JE TELO POTOVALO OD ENEGA NADSTROPJA DO DRUGEGA ALI Z ENEGA OKNA K DRUGEMU, SE JE POJAVILO V VIDNEM POLJU, KJER JE SVETLOBA PRONICALA V JAŠEK. IZMENIÈNO JE BILO OSVETLJENO IN HIP ZATEM JE SPET IZGINILO V TEMO. TELO SE JE KOMAJ DVIGOVALO IN NATO SPUŠÈALO, SAJ SE JE MORALO PRILAGODITI PRONICAJOÈIM ▯ARKOM SVETLOBE IN SE V VSAKEM NADSTROPJU PREMIKATI S KONICAMI PRSTOV NA ROKI IN NOGI, SAJ SE JE TELO OBRAÈALO Z ENE STRANI NA DRUGO. IZKUŠNJA JE BILA KOT PRI PREDIRANJU STEBRA ZRAKA, KI SE JE NAHAJAL V JAŠKU.
(Gor/dol: dogodek za obešenje v jašku, Hardware Street Studio, Melbourne, 1980).

ZADNJE OBEŠENJE

Dogodek za napeto ko▯o/tretja roka je bil uprizorjen na opušèeni enotirni ▯elezniški postaji Ofuna leta 1988. Ojaèeno telo s pritrjeno tretjo roko, aktivirano z gibanjem roke in trebušnimi signali, je upravljalo na daljavo lastne motoriène gibe gor/dol, kar je trajalo 35 minut. Telo je bilo odveèno, dogodki so bili dokonèani in izèrpani. S tem se je konèalo obešanje napete ko▯e, a performansi s tretjo roko se bodo nadaljevali še deset let...

IZ DOGODKOV OBEŠENJA SO SE SO SE RAZVILE METAFORE ZA ÈLOVEKOVO PRE▯IVETJE IN RAZVOJ. NATANÈNEJE, OZNAÈUJEJO PRONICANJE ÈLOVEKOVE ZAVESTI S POMOÈJO SILOVITIH NAPADOV ZUNANJIH INFORMACIJ (KAVLJI) IN GOSPODARJA TEH

THE LAST SUSPENSION

Event for Stretched Skin/Third Hand was realized at the abandoned Ofuna monorail station in 1988. The amplified body with its Third Hand attached and activated by its arm and abdominal signals, remote-controlled its motorised up/down motion for approximately 35 minutes. The body was obsolete; the events were elaborated and exhausted. That ended the stretched skin suspensions - but performances using the Third Hand would now continue for another 10 years...

FROM THIS THE SUSPENSION PIECES DEVELOPED INTO METAPHORS FOR HUMAN SURVIVAL AND DEVELOPMENT. SPECIFICALLY, THEY CONNOTE THE PENETRATION OF HIS CONSCIOUSNESS BY A BOMBARDMENT OF EXTRANEOUS INFORMATION (THE HOOKS), AND HIS MASTER OF THAT ASSAULT AND THE FORCES OF NATURE (GRAVITY, HIS OWN PHYSICAL AND PSYCHOLOGICAL LIMITATIONS) BY FLOATING (SUSPENSION).
(IAN NORTH - LINK EXHIBITION CATALOGUE STATEMENT)

For more information on these performances, refer to the book Obsolete Body: Suspensions Stelarc (Edited by James D. Paffrath, JP Publications, Davis CA- 1984) and to Stelarc's website.

Stelarc is an Australian artist who has performed extensively in Japan, Europe and the USA - including new music, dance festivals and experimental theatre. He has used medical instruments, prosthetics, robotics, Virtual Reality systems and the Internet to explore alternate, intimate and involuntary interfaces with the body. He has performed with a third hand, a virtual arm, a virtual body and a stomach sculpture. He has acoustically and visually probed the body - having amplified brainwaves, blood flow and muscle signals and filmed the inside of his lungs, stomach and colon, approximately two metres of internal space. He has done twenty-five body suspensions with insertions into the skin, in differ-

NAPADOV IN NARAVNIH SIL (TE NOST, LASTNE FIZIÈNE IN FIZIOLOŠKE OMEJITVE) S POMOÈJO LEBDENJA (OBEŠENJA).
(IZJAVA IZ KATALOGA RAZSTAVE IAN NORTH - LINK)

Podrobnejše informacije o teh performansih boste našli v knjigi Obsolete Body: Suspensions Stelarc (uredil James D. Paffrath, JP Publications, Davis CA - 1984) in na Stelarcovih spletnih straneh http://www.stelarc.va.com.au.

Stelarc je avstralski umetnik, ki je veliko nastopal na Japonskem, v Evropi in ZDA, vključno z novimi glasbenimi, plesnimi festivali in eksperimentalnim gledališèem. Uporabljal je medicinske instrumente, proteze, robotiko, sisteme virtualne realnosti in internet v raziskovanju alternativnih, intimnih in nehotenih vmesnikov telesa. Izvajal je performanse s tretjo roko, virtualno roko, virtualnim telesom in telodèno skulpturo. Zvoèno in vidno je prediral telo - tako da je ojaèil molganske valove, krvni obtok in mišične signale ter snemal notranjost pljuè, telodca, èrevesa, vsega skupaj dva metra notranjosti. Vseh dogodkov obešenj je bilo petindvajset, vsebovali pa so prediranje kole, različne pololaje telesa, različne okolišèine in oddaljene kraje. Za Fraktalno meso, ki je del Telepolis, je razvil sistem mišične stimulacije, ki omogoèa dostop na daljavo in koreografijo telesa. Performansi, kot so Ping Body in Parasite raziskujejo predstave o telematičnem tehtanju, projektiranju zunanjih, podaljšanih in virtualnih livènih sistemov za telo, ki uporablja internet. Za Kampnagel je pred kratkim dokonèal "exoskeleton" - 6-nolni hodeèi pnevmatični stroj, ki ga poganjajo gibi rok. Novejši projekti vključujejo dodatno uho - kirurško ustvarjeno uho kot dodatna obrazna poteza, ki skupaj z modemom in prenosnim raèunalnikom slui kot internetna antena in lahko sliši RealAudio zvoke; movatar - inteligenten avatar, ki bo zmogel izvajati performans v resničnem svetu tako, da bo imel na voljo fizi-èno telo. Imel bo tudi telesni zvoèni odzivnik, ki bo predstavljal uho virtualne entitete v svetu. Stelarc pripravlja tudi podaljšano roko - upravljalnik z enajststopinjsko svobodo gibanja, ki

ent positions and varying situations in remote locations. For the Fractal Flesh, as part of Telepolis, he developed a touch-screen interfaced Muscle Stimulation System, enabling remote access, actuation and choreography of the body. Performances such as Ping Body and Parasite probe notions of telematic scaling and the engineering of external, extended and virtual nervous systems for the body using the Internet. Recently for Kampnagel, he completed exoskeleton - a pneumatically powered 6-legged walking machine actuated by arm gestures. Current projects include the Extra Ear - a surgically constructed ear as an additional facial feature that coupled with a modem and a wearable computer will act as an Internet antenna, able to hear RealAudio sounds and movatar - an intelligent avatar that will be able to perform in the real world by possessing a physical body. It will have a sound feedback loop from the body giving the virtual entity an ear in the world. He is also working on an extended arm - a manipulator with eleven degrees of freedom that extends his arm to primate proportions and a motion prosthesis - an intelligent, compliant servo-mechanism that enables the performance of precise, repetitive and accelerated prompting or programming of the arms in real-time. In 1995, Stelarc received a three-year Fellowship from The Visual Arts/Craft Board, The Australia Council. In 1997, he was appointed Honorary Professor of Art and Robotics at Carnegie Mellon University. He is presently Artist-In-Residence for Hamburg City. In 1999, he was re-appointed as a Senior Research Scholar for the Faculty of Art and Design at the Nottingham Trent University. His art is represented by the Sherman Galleries in Sydney.

zmore podaljšati roko do velikosti roke primate, in gibljivo protezo - inteligenten, prilagodljiv servo mehanizem, ki omogoèa performans natanènih, ponavljajoèih in pospeševalnih navodil ali programiranja rok v realnem èasu. Leta 1995 je Stelarc prejel štipendijo za vizualno umetnost od avstralske drlave. Leta 1997 je bil imenovan za èastnega profesorja umetnosti in robotike na Univerzi Carnegie Mellon. Trenutno je gostujoèi umetnik mesta Hamburg. Leta 1999 je bil ponovno imenovan tudi za višjega predavatelja za raziskovanje na Fakulteti za umetnost in oblikovanje na Univerzi Nottingam Trent. Njegovo umetnost predstavljajo Galerije Sherman v Sydneyju.

½LEVITATION CAPSULE,½ A PROTOTYPE BY MARIKO MORI

Dr. Rachel Armstrong

Combining Far Eastern spirituality and pop culture, the dazzling Japanese multimedia artist and ex-model Mariko Mori directs, produces, and stars in her fantasies that are constructed as starling immersive experiences. She uses a huge range of innovative techniques to bring her vivid imagination to life, embracing panoramic photography, video, performance art, and innovative 3-D video technology. Mori takes us from one reality, transports us into another indulging all our senses, designing the costumes, and sets for her work, composing lyrics and singing.

The Serpentine Gallery in London, where was in summer 1999 Mariko Mori exhibiting new work in her largest one-woman show in the UK to date, includes Nirvana, featured at the 1997 Venice Biennale where aliens, cyborgs, and spirits inspired by Buddhist imagery act as avatars to an installation piece taking place in an eccentric mythological world.

M. Mori: Bubbles, 1996/
M. Mori: Mehurèki, 1996

Mori uses technology to ensure that her artwork is presented in a manner where we can leave behind the conventions of separatism that exist between art, science, and spirituality.

For further reading on the dissolution between the disciplines of art, technology, science, and culture, refer to the November 1997 edition of Art & Design Sci-Fi Aesthetics, Wiley Academy. In this compilation of essays and original material I use my experiences as a doctor,

"KABINA ZA LEBDENJE", PROTOTIP, KI GA JE IZDELALA MARIKO MORI

Dr. Rachel Armstrong

M. Mori: Bubbles, 1996/
M. Mori: Mehurèki, 1996

Sijoèa japonska multimedijska umetnica in bivša manekenka Mariko Mori re□ira, producira in igra v svojem domišljijskem svetu. Zgrajen je kot presenetljiva potopitvena izkušnja tako, da povezuje duhovnost Daljnega vzhoda in pop kulturo. Umetnica uporablja pestro zbirko izpopolnjenih tehnik, s pomoèjo katerih nam prièara svoj bujno domišljijo v gledalèev svet, in sicer s panoramsko fotografijo, videom, performansem in z izpopolnjeno 3D video tehnologijo. Mariko Mori nas zlahka prenese iz ene resniènosti v drugo, pri tem razvaja vse naše èute, oblikuje kostume in scenografijo, pesni in tudi poje.

Galerija Serpentine v Londonu v Veliki Britaniji, kjer se je Mariko Mori samostojno predstavila poleti 1999, je vkljuèila delo Nirvana, ki jo je avtorica predstavila tudi na beneškem bienalu leta 1997. Vesoljska bitja, kiborgi in duhovi izhajajo iz budistiènih podob kot avatarji in so postavljeni kot del instalacije v èudaškem mitološkem svetu.

Mori uporablja tehnologijo, ki omogoèa predstavitev umetniškega dela tako, da lahko opustimo separatistiène dogovore, ki obstajajo med umetnostjo, znanostjo in duhovnostjo.

V novembrski številki revije Art & Design iz leta 1997 sem objavila tekst o razkroju med posameznimi vejami umetnosti, tehnologije, znanosti in kulture z naslovom ZF estetika (*Sci/Fi Aesthetics*). Izbrala sem razliène eseje in izvirna gradiva, kjer so vpletene tudi moje lastne

writer, and artist to expose the interconnectedness of the aesthetic image, the body and medical technologies. By imagining myself as a future natural historian, I explore current images offered by artists such as Mariko Mori as *fossil* evidence for the evolutionary partway that man may take in the near future. Sci-Fi Aesthetics proposes that the human race will soon have changed to such a degree that it is no longer discernibly *human* according to our current thinking. As an *alien* observer on the possible outcomes of our evolution, I reevaluate our understanding of the criteria that drive *the survival of the fittest* and prepares us for the time when we are able to look at ourselves from the outside.

Dr. Rachel Armstrong:
Japanese artist, Mariko Mori is celebrated for her multi-media skills and ability to direct projects on a scale that have been likened to Hollywood movies. Fortunately, she has no need for corporate funding - which leaves her free to push back the boundaries of light beyond mere mortal imagination. Enlightenment Capsule is Mariko's most ambitious design to date. The transparent sculpture is a light capsule that focuses the sun's rays, ingeniously combining art and invention.

Mariko Mori:
The sound light transmitter machine works with pure visible light, taking red light out and by computer always following the sun. This is a prototype. In the future, I would like people to sit inside and levitate inside the capsule. Lotus flower is the symbol of enlightenment in Buddhism. Shin is very important energy. Not only this planet or whole solar systems and source of energy and in terms of purification and growth. I like getting in touch with nature through light.

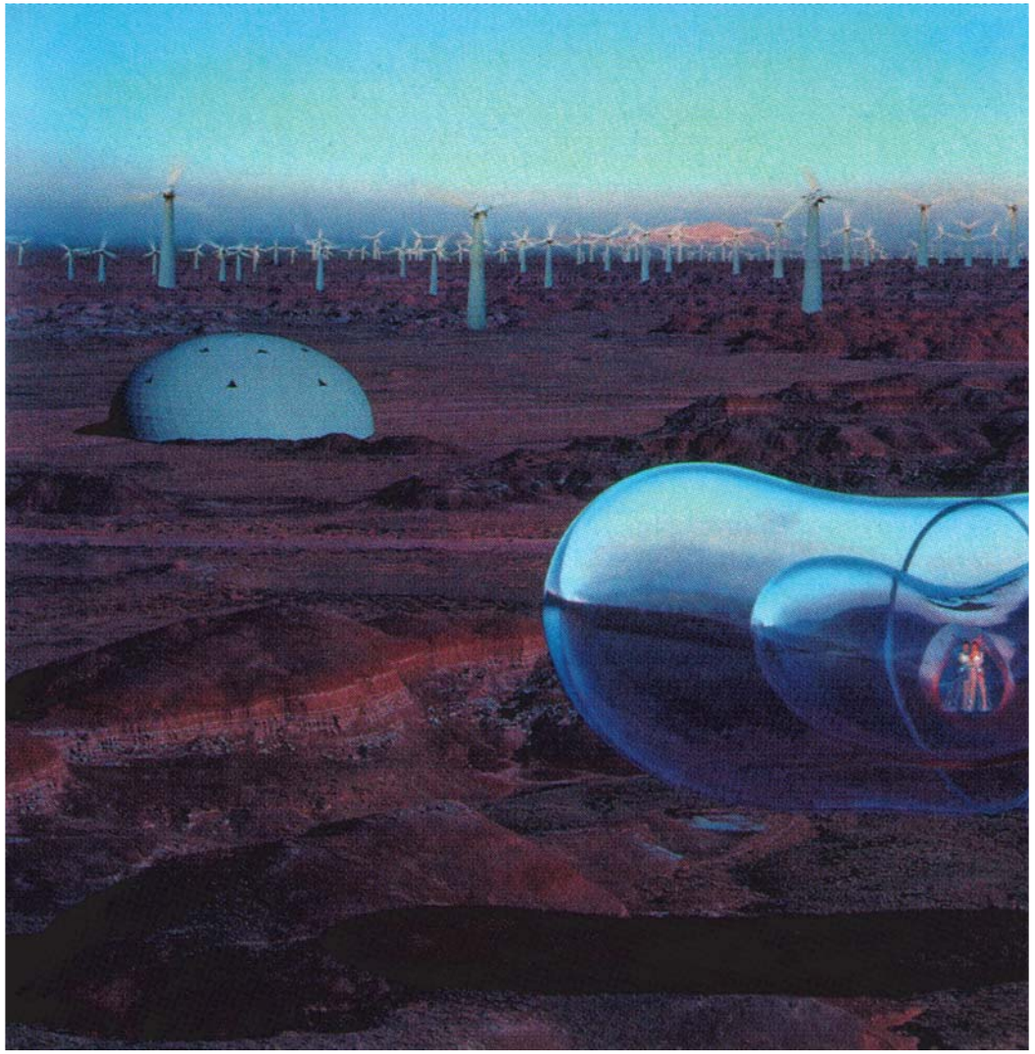
Dr. Rachel Armstrong:
Giant Photomontages adorn the walls of the Serpentine Gallery in Hyde Park based on the four elements and her favourite landscapes.

izkušnje zdravnice, pisateljice in umetnice, da bi razkrila medsebojne povezave estetskih podob, telesa in medicinskih tehnologij. Samo sebe si zamišljam kot naravoslovno zgodovinarko prihodnosti. Podobe sedanjosti, ki jih ponujajo umetniki, kot je Mariko Mori, raziskujem kot *predpotopno* dokazno gradivo na evolucijski poti, ki jo bo èloveštvo morebiti prehodilo v bli□nji prihodnosti. V èlanku razpravljam o tem, da se bo èloveški rod kmalu spremenil do te mere, da pravzaprav sploh ne bo veè razloèno *èloveški* po obstojeèih merilih. Kot *vesoljni* opazovalec mo□nih izidov naše evolucije skušam na novo vrednotiti razumevanje kriterijev, ki vodijo k *ohranitvi moènejšega;* slednje nas pripravlja na obdobje, ko bomo sposobni gledati nase od zunaj.

Dr. Rachel Armstrong:
Japonska umetnica Mariko Mori je znana po svojih multimedijskih spretnostih in sposobnosti pri re□iranju projektov. V Hollywoodu bi ta pristop z veseljem vzeli za svojega. Na sreèo umetnica ne èuti nobene potrebe po skupnih nalo□bah, kar ji omogoèa, da po mili volji potiska svetlobo preko meja preproste domišljije smrtnikov. Prosvetljena kabina je njen najbolj stremuški izdelek do sedaj. Prosojni kip oziroma svetlobna kabina usmerja sonène □arke. V tem delu umetnica bistroumno zdru□uje umetnost in izum.

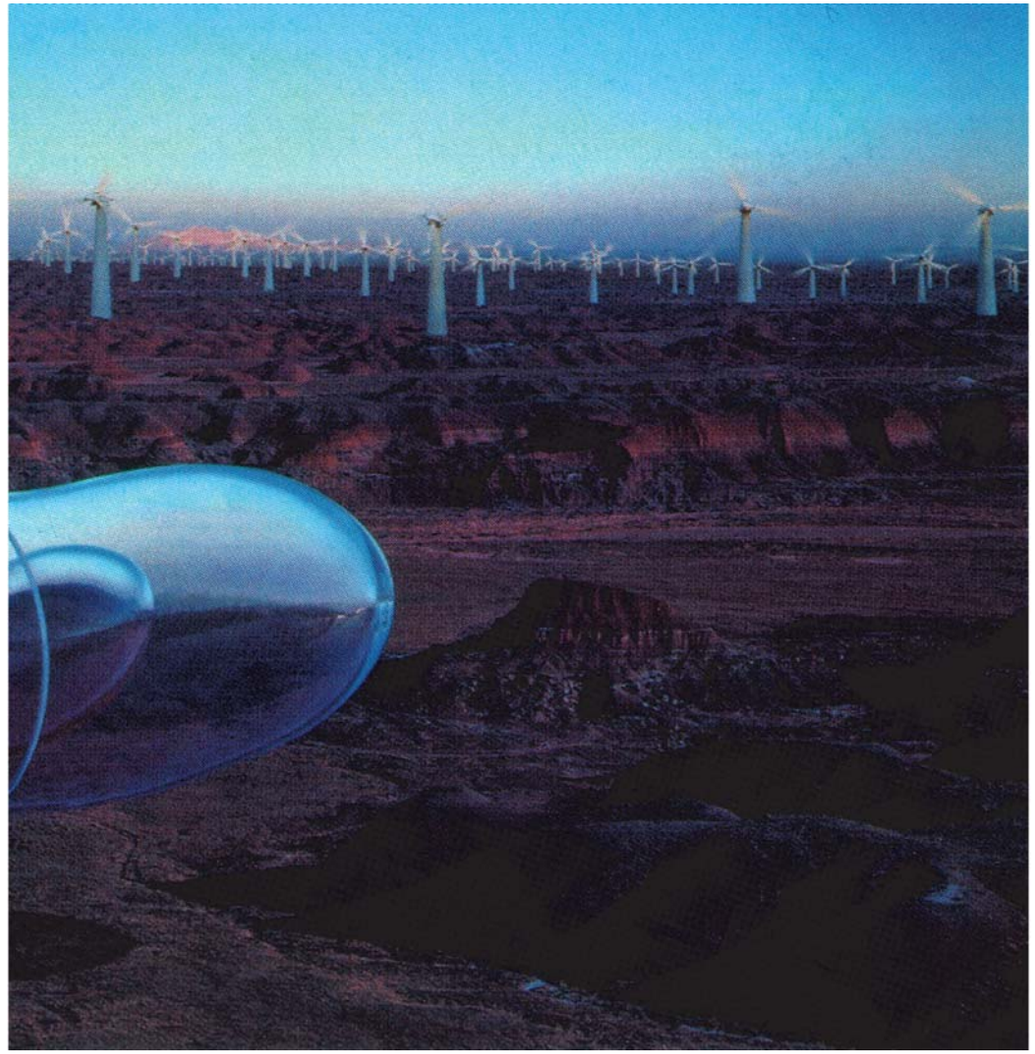
Mariko Mori:
Zvoèno svetlobni oddajnik deluje pri èisti dnevni svetlobi tako, da ji odvzema rdeèo svetlobo. Raèunalniško voden oddajnik nenehno sledi soncu. To je seveda prototip. V prihodnosti si □elim, da bi ljudje sedeli in lebdeli v notranjosti kabine. Lotosov cvet je simbol prosvetljenosti v budizmu. Golenica predstavlja zelo pomemben vir energije. Ne samo na tem planetu, v celotnih sonènih sistemih so energetski viri v smislu oèišèenja in rasti. Najraje stopim v stik z naravo s pomoèjo svetlobe.

Dr. Rachel Armstrong:
Ogromne fotomonta□e, ki temeljijo na štirih elementih in njenih priljubljenih pokrajinah, krasijo stene v Galeriji Serpentine v Hyde



M. Mori: Entropy of Love, 1996/M. Mori: Ljubezenska entropija, 1996

In some of these she is floating above the landscape, encased in a plastic bubble as a futuristic space-traveller. In keeping with her characteristic style, Mariko appears in all the images playing many roles in their inception; as model, fashion designer, and artistic director, resourcefully using her many skills to bring her creative visions to life.



Parku. Na nekaterih jo lahko vidimo, kako lebdi nad pokrajino, obdana s plastièni mehurèkom kot kakšen futuristièni vesoljski popotnik. Z ohranjanjem znaèilnega stila se Mariko pojavlja v vseh podobah in igra najpomembnejše ustvarjalne vloge le v zametkih; kot manekenka, modna oblikovalka, umetniški direktor uporablja mnoge spretnosti, da bi oživila svoje ustvarjalne vizije.

Mariko Mori:
Even in Renaissance times, the artist sometimes designed buildings or invented technology. It is very challenging for artist to develop new ways of expressing him or herself.

Dr. Rachel Armstrong:
The pictures and techniques are striking in their complexity and yet there is something very simple we can all identify with that go beyond the power of language. It is a daunting task for any one person to address all the issues that Mariko and artists like her raise in making their work. For the first time in history, the image has become indistinct from the creative technology raising the question of whether the traditional way of talking about art is sufficient for such radical and elegant statements. Whether we see a new form of art critic evolve to give a more in-depth judgement of technologically based artwork remains to be seen. It is a new language - how it's going to be categorized is interesting. It is appropriate in the year 2000 to change our old ways of looking at are, technology and the extra-terrestrial environment. This is the time to go beyond what we have accepted before.

This text was written as notes for a documentary on the artwork and was done as a six-minute documentary with BBC UK Arena for a program called The Frame. The documentary no longer exists.

Mariko Mori:
Celo v renesanènih èasih je umetnik kdaj oblikoval zgradbo ali izumil novo tehnologijo. Za umetnika je velik izziv razvijati nove naèine lastnega izra anja.

Dr. Rachel Armstrong:
Slike in tehnike so osupljive v svoji zapletenosti, toda vseeno lahko v njih najdemo neko preprostost, ko za razumevanje ni potrebna moè jezika. Za vsakega umetnika, ki k svojim umetniškim delom pristopi tako kot Mariko Mori, je to izjemno zahtevno opravilo. Prviè v zgodovini se podob ne da razlikovati od ustvarjalne tehnologije, kar postavlja vprašanje, ali je tradicionalni naèin, s katerim se pogovarjamo o umetnosti, zadosten za tako napredne in elegantne izjave. Najbr bo šele èas prinesel odgovor na to, ali sploh vidimo novo obliko umetniške kritike, ki se pojavlja, da bi lahko poglobljeno sodila o tehnološko zasnovanih umetniških delih. Pojavlja se nov jezik - zanimivo je le, kam ga bomo uvrstili. Za leto 2000 se spodobi, da bi e spremenili stare naèine gledanja na tehnologijo in izvenzemeljsko okolje. Prihaja èas, ko bomo morali stran od tega, kar je uveljavljeno.

Besedilo je napisano v obliki zapiskov za dokumentarni film, po katerih je dr. Rachel Armstrong naredila šestminutni dokumentarec skupaj z BBC UK Arena za program Okvir (*The Frame*). Dokumentarni film ne obstaja veè.


LEVI'S
the
TWISTED
original
LEVI'S ENGINEERED JEANS
the
TWISTED
original


LEVI'S ENGINEERED JEANS
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TWISTED
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Levi's


ORIGINAL
Levi'S
STORE

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