

Virtual presence and physical beings:

From telegraph to telecast

This essay was written in Autumn 2000 just after completing 2 workshops focusing on the performative use of telematics (CellBytes00 at Arizona State University and Corpos Online at Lugar Commun in Portugal). The following paragraph sets the context of the debate. Ghislaine Boddington May 2006

What is live? What is natural? What does it mean to be embodied? How many identities can one have? What is the essence of presence? This is a period of investigation for the performing arts, which have traditions deeply integrated with live presence through their special performer-to-spectator connection. My work as a director of performing arts has immersed me in the live event. Across the last twelve years or so I have engaged with digital technologies in this work and have reached a point of fascination in the interface demands of the digitalised body alongside the live physical body. This has for me brought up many questions which are highly topical in sectors beyond the arts. I detail some of this work in the following text and contextualise these explorations within the wider socio-cultural engagement with telephonics. This text explores some of the reasons why there is a need for more performance practitioners to research the changing concepts of presence that will exist in the future.

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The 1990s will be remembered most of all for the worldwide disappointment the false promises of the digital age. The thirty-year lead up to the year 2000 has not fulfilled itself in the eyes of the mass public. Complaints about the physical and mental strains of computing abound - they haunt our hands and eyes with repetitive strain injury and isolate us for hours behind a screen, destroying our social communication skills. Global connectivity to others far away is a key selling point - satellite and cell phone technologies now reach most parts of the globe, and yet, even as we entered the third millennium, a third of the world had never even made a telephone call.

Our bodies are cumbersome, painful and disappointing as we age. The physical effort of dragging the body around is, in many ways, such a waste of time. The body has to have sleep and we have to spend many hours restricted and squashed up, on trains and planes, in buses and cars, and in queues. We exhaust ourselves and wear down our mechanical skeleton walking, running, trying to keep up. How many of us have wished that the world was a little more advanced in a *Star Trek* fashion? Why are we not able yet to holiday on Mars and live until we are a hundred and twenty? Why

can we not teleport across the globe for work and family visits just by saying the word? When we have to make such an effort to trek across a city after a hard day at work to get home, or even to see friends, "Beam me up Scotty" must have been the wish in many millions of heads, many million times.

Teleporting is only one of the experimental methods fantasized about to enable body/mind transportation. Other methods have extensive written documentation - astral projection, telepathy, hallucination. We still yearn to fulfil the eternal dream of the human race - to be connected and present, to reach out beyond ourselves and be a part of the whole. At the beginning of the twenty first century we are left exploring our fate through other methodologies and this is where digital transportation systems start to come into play. The use of virtual communication technologies is creating new concepts of presence.

In the performing arts today key players around the world are exploring the potential of the redefinition of live presence, the enhancement of the senses and new user interfaces for the public to access performance. This is taking place within staged, installation and web space - the audience experiencing the work as a spectator and/or a participant/user. The meeting of the virtual and the physical body, inherent in many of these technologies, raises areas needing exploration. How do these projected forms of the body, created and

transmitted through digital tools, bring new awareness to our concept of relationship to others? What is live? What is natural? What does it mean to be embodied? How many identities can one have? What is the essence of presence? This is a period of investigation for the performing arts, which have traditions deeply integrated with live presence through their special performer-to-spectator connection.

My work as a director of performing arts has immersed me in the live event. Across the last twelve years or so I have engaged with digital technologies in this work and have reached a point of fascination in the interface demands of the digitalised body alongside the live physical body. This has for me brought up many questions which are highly topical in sectors beyond the arts. I detail some of this work in the following text and contextualise these explorations within the wider socio-cultural engagement with telephonics. This text explores some of the reasons why there is a need for more performance practitioners to research the changing concepts of presence that will exist in the future.

Both the telephone (since the 1880s), and radio (since 1901), have enabled many years of language based connection. Telephone has allowed a one to one connection, giving the user live connected audio access through the existence of both the transmitter and receiver in the home. In subsequent

decades, television has kept us in a one way audio/video passive receiver position, with information and entertainment pushed at us. But now digital telecommunication developments have given the potential for every individual (with the financial means to acquire the equipment) to receive and to transmit data from one's own home. This in-house machine is a live, do-it-yourself, audio-visual transmitter – microphones are embedded, web cameras are cheap add-ons, software is available free on the web. After a century of one to one telephony, controlled by the giant corporations, we are at a point in time when access to transmission is available to many.

The use of real time online connections to others is huge. Sue Thomas at the trAce ¹project based at Nottingham Trent University has extensive experience of working with text and writing online. She points out that:

The Internet holds many secrets. It contains huge amounts of data, but finding what you want is becoming an almost arcane art. The web provides a very fancy portal to some of these places, but there are still plenty of sites which are also accessible by lesser-known routes. One of these is called Telnet, a very simple text-based system which allows you to log into remote computers and type/talk in real time with people around the world. Telnet gives you access to hundreds of Virtual Worlds, each one created and maintained by some research project somewhere, and each one providing a permanent and constantly growing imagined environment rather like the 'consensual hallucination' described by William Gibson in *Neuromancer*. They are called MUDs (multiple user domains) and MOOs (MUD, object-oriented). You can visit these places, build homes in them, create objects, make friends and have virtual sex in them. Some people even get moo-married in them, though we've yet to hear of anyone having moo-children!

The 'hyper-reality' of becoming entangled in another life is engaging and obsessive. We can be 'other' than we are in these places. This is backed up by the huge success of video games where one IS the fast car driver, the kick boxer, the super girl, and by the avatar obsession of the world wide web² In the online web worlds, the avatar allows you to recreate yourself in another mode that suits you for that environment. You can choose your gender, size, shape, skin, colour and also acquire magical powers of many types to help you survive in these parallel universes.

3D multi-user landscapes allow you to navigate your representation within virtual environments. Communities are constructed, choices made, the user is the creator. This all aids the public confidence in self-curation, an ease with multi-identities. In today's world we can choose to have multiple selves which allow us to exist in multiple sites. One of the most used environments is Ultima Onlines Britannia, the online virtual world of role-playing used by thousands world-wide daily.³

Writer Ken Hillis in his book Digital Sensations states in the epilogue:

If, given the ongoing proliferation and social embrace of electronically mediated communication, individuals increasingly believe that significant components of their identity are capable of relocation "within" communication devices such as internet technologies and virtual environments, then the ways in which these people relate to space and their place on this earth will reflect this belief.⁴

Power to the individual - to be an other to oneself is a very strong force in the younger generations. In my work as a process mentor and moderator of inter-cultural debate between dance makers I meet many choreographers from all over the world. The younger African, Asian and South American artists I have worked with support this debate without any reference to technology. They are not of the view that one must 'find oneself' and then this one self stabilises into the person you are. Single identity is no longer an issue for the younger generation. Young British Asians and Afro-Caribbean's move fluidly through their lives, from traditional family occasions at weekends to city work and clubbing during the week, clothing, language and gesture all changing. Young South African choreographer Bozie Cekwana spoke about this fluidity at the seminars I moderated in the Dancin' World Festival (Copenhagen International Theatre August 2000 ⁵) indicating that:

I am a colonised body - a colonised mind. I am aware of this. The process is about accepting this polarity - so much of me is European and so much is African. How much should I hold onto and how much should I rid myself of? Fusion and hybridity - this is what most of us are and I recognise it. I do not try, except in a few intellectual exercises, to make a fusion - it is what I am. There is so much baggage - yet it is interculturalism that influences the relationships I form today.

Know who you are and where you come from, but also be of now. 'Know your roots but spread your branches' says Germaine Acogny, choreographer and director from Senegal during the Munich Dance 2000 atelier, *Body Cultures, Body Talks*⁶. A diversity of inputs - traditional, modern, western and eastern - creates a diversity of outputs. Borrowing, appropriating, sampling, assimilating - to encapsulate a new you - are well recognised processes in art and culture, from the last quarter of the twentieth century.

The performing arts have been slow to take on the challenge presented by this digital body in its various forms. Too many fears exist, fear of the loss of intimacy, loss of control of the body, loss of the need for the performers skills in creating a deep relationship in real time. The supremacy of live presence and the virtuosity of the performer has been strongly threatened by the public's own skills in creation and performance, a public far more able to deal with both being behind and in front of the camera after many years of home video and reality tv. One of the earlier examples of the use of the internet for mass audio-visual transmission to a general public was by a New York student who allowed 24 hour access to her bedroom/study via a simple web cam. Sleeping, playing, dressing, eating, studying - Jenny opened her life up to anyone with the means to view, taking an ironic stance against the hidden camera techniques employed by television. The *Jennicam* site shook up some theatre and choreographic artists to look at the live use of the

internet and experimental use of the web as a live performance site began to emerge.⁷

Telematic Dreaming by the visual artist Paul Sermon was an excellent early gallery-based project making a clear point about audience interaction within transmitted art. Visitors to the gallery could interact with a distant performer via a TV screen, sitting by them on a couch and reacting in a variety of ways. The distant performers experienced love and hate from the public, one offering a rose, another pulling out a knife.⁸ Blast Theory, the British-based theatre group who have been using technologies in their staged work for years, created a live art piece called *Kidnap*⁹. People could fill in a detailed form to apply to be kidnapped for twenty-four hours by the company. Ten applicants were chosen and observed, until a final two were kidnapped and taken to a room in a secret location. Twenty-four hour web cam access and a chat room gave the wider public access to the project. This was an early Big Brother experience.¹⁰

Maggie's Lovebytes was a breakthrough dance theatre performance occurring in real and virtual (net) space. Created by Amanda Steggel, Per Platou and their performance group Motherboard (Norway) in 1997 it toured several European festivals. Participants interacted through sound, text and real-time video conferencing.¹¹ *Menage a Trois* is a more recent project in

which Amanda Steggel participated. Michelle Teran from Toronto sat in a gallery with a PowerBook and provided each visitor with a tiny screen which showed Amanda Steggel's image as she appeared live via Ivisit, a web based video conferencing programme. Steggel was highly costumed in retro-sci-fi gear, portrait style, and she added text, image and sound. Teran communicated the text to the visitor verbally and typed the public's responses back to Steggel. Steggel notes ' All of the visitors had no idea I was a REAL person. The small size of the screen and the low bandwidth image helped this illusion. ... We managed to create a little universe which did not fall apart, at least not for the 15 – 30 minutes we had with each participant.' ¹² In Ars Electronica in Linz this year Viennese artist Harald Kapfa created a chat room theatre piece using pornographic chat rooms to get unknowing visitors involved in improvised text theatre works.¹³

CellBytes2000 and Corpos Online – Virtual Performance

Over the last few years I have directed a series of projects with shinkansen which have been directly concerned with the evolution of live performance on the web. shinkansen works as a research unit, creating professional development opportunities for performing and digital artists. Under our programme of work FUTURE PHYSICAL ¹⁴ (running between 1999 – 2003) we have initiated several workshop/residency projects to explore the potential

dramaturgical and technological methodologies to create live performance for remote connected stages. The results of these are small dual-space performance pieces called *CellBytes* which are simultaneously transmitted online from a mix of two or more live stages. We explore and experiment with the aim of giving physical dance and movement a chance to be multi-sited and to exist simultaneously in physical and virtual places. We also aim at a presence for dance on the web in accessible and topical forms. The end results are archived as tiny QuickTime movies which are downloadable and within most people's computer capacity. This summer (2000) we created sixteen of these bytes, eight of them during a group residency at the Institute of Studies of the Arts, Arizona State University (*CellBytes2000*)¹⁵ shinkansen took a group of six European artists (sound, movement, image and production) to join an equivalent American group and to work together with dancers and technical crew across two spaces for two weeks. Six of the *CellBytes2000* movies from this project, each two to seven minutes long, are available on the web for anyone to download. A couple of months later we were outside Lisbon running a workshop for Portuguese sound, movement and image artists. In the wonderful setting of the Lugar Comum production house *Corpos Online* produced an entirely different set of bytes, being archived for the web as I write this text¹⁶

The difference in the results between these two projects is due to the particular, but flexible process we have evolved for our group work across the last ten years. This process of inter-authorship is designed to be conducive to the positive evolution of artistic work between live performance artists and digital artists. For shinkansen our existence in an intermedia and intercultural world makes inter-authorship the only option for a new creative form based on remote global connectivity. As a group of creators predominantly working with the live event we feel clear that real time performance must find ways to address the new identities and relationships enabled by digital communication technologies. It gives us the opportunity to experiment with connectivity, breaking down the distance of space that has, until now, kept time-based forms such as performance in one site. The process shinkansen directs is one of inter-authored performative and technical creativity. The imperative is that the creative technical/performance/content is a weave – a three stranded plait that must be kept in continuous and simultaneous motion when in creation to ensure a stable and satisfactory result. This process takes a very different stance to the normal performative creation methodologies. It engages the technical and production participants as artists fully involved in the creative mix. It demands the evolution of a joint pattern of thinking which the whole group needs to form together – a kind of mind-pool of creation patterns which allow the live flow to keep in motion. The results can be highly structured or

highly improvised, and the aesthetic diversity that emerges is equally as wide as in other performative forms.

Lisa Naugel, Assistant Professor of Dance and Technologies at the University of California, Irvine has also been choreographing for 'live simultaneous/telematic web-based and interactive performance projects'. She responded to an email debate about the inter-authorship process used in *CellBytes2000*

Distributed choreography characterises an area of artistic vision which includes the collective intelligence of people working collaboratively alongside the peculiar idiosyncrasies of telecommunication tools, and uncertainty regarding networked performance (dynamics between dance and technology) may become outdated with time. It appears that those who worked on the Janus project (choreographers, dancers, musician, video artist, technical support) gained experience, and new information or knowledge (through sensing and exploring physical intuition) about reasoning, planning, performing and sharing dance, music and video between people at the same time who are located in different spaces. (Dance-tech list August 2000 ¹⁷)

The *CellBytes* produced so far have ranged greatly in their content development under the theme of FUTURE PHYSICAL. Much time has been spent developing dance/camera interactions which aim at a sense of presence and the evolution of the distant connectivity of the performers. In one piece *Virtual Partners* (CellBytes 2000) two identical duets are set in

motion but with three dancers in one space and one in the other. The separated duo dance their duet at a distance to each, the choreography allowing the dancers to flow around each other, meeting the other virtually as their movement material interacts. In the live performances of this special piece the atmosphere was intimate and connected, warm, very physical and yet ethereal. Here we felt as a group that a magical performance empathy was achieved between the two spaces and we all knew that a new type of physical connection had occurred.

Another piece in the Arizona residency created much discussion as we realised that we could not, due to technical difficulties, audio transmit the amplified heartbeat of the performer in one space to the other stage which was a ten minute walk away. For *Stethoscope* the group debated the difference between live transmission of this deep physical body sound and the simulation of it at the other end through data transfer. For a number of the participants this difference was significant because simulation disallowed the 'reality' transfer. This prevented the teleportation dream from coming true, as if the transmission and mixing of live bodies' online demands a physical realism to ensure true connectivity. The CellByte *Contact* was made using contact improvisation and moving camera techniques, with the dancers holding and exchanging the cameras as they danced. Here gesture motifs were created to make clear connections between the bodies in the

separated spaces. There is a good deal of work to be done exploring how the camera becomes part of the body and the essential navigation and connection processes between the performers. The effects of both emotional intensity and unease are gained through close up and magnification of the image as in film; the differences lying in the real time exchange of the motion of the camera with the bodies and the real time action taken to the received image.

At the Lisbon project *Corpos Online* eight *Cellbytes* were made ranging from forty seconds to ten minutes. This group, still working under the theme FUTURE PHYSICAL, approached a lot of the work with an entirely different conceptual construct, which emerged naturally from the group process of inter-authorship. Rather than approaching the distance between the locations as separate image canvases mixed to enable interaction, these young Portuguese artists saw the projection screens as transparent walls of an unknown fluid, through which they could transport themselves from one space to the other. They were concerned with the difficulties of trust between performers at a distance. This emerged literally in four tiny process bytes under the group title *Trust*. *Trust-Water* and *Trust-Ball* used the physical object as a prop in one space to have an effect on the virtual body in the other. Real sensation was swept aside. The ball sped across the room from one performer's hand nearly to hit the virtual performer, who ducks

just in time to avoid what was, in her reality, a projected image of the ball. Real sensations hit the spectator, our physical perceptions tricked for a moment of time.

A large group improvisation *sampling some of the process and content outcomes from the two weeks created My Orientation*. Pedestrian objects such as a mobile phone, a cigarette lighter and a coffee cup were used as props within the performance in one space and, enlarged through the transmitted projection, they become the décor for the second stage. Body perspectives were changed between the spaces and one, *Big Face*, is an example of a fragment where the close up of one performer's facial gestures in one space became the backdrop for reactive body work by the normal sized dancers in the other. Performer connection through direct relative reaction created some fun and humorous remote interactions. Continual experimentation as to where you are in relationship to your physical space and to the space/partners you are receiving from a distance is necessary. In one exploration of distant, blindfolds were used to disorientate the dancer in one space while another performer directed her movements from the remote space. Exploring orientation methods and juxtaposing these with processes of disorientation has powerful potential for future development.

The two spaces in both these projects were close to each other, the aim being to enable the process of telematic performance connection to be explored by the groups through both virtual and physical means in these early experiments involving distant performance. Each space created a very different physical atmosphere for the performers, the production artists and the spectators. When you are restricted to a headphone connection, to deal with every tiny change required for the dramaturgical and technical mix to be perfected, you evolve an intense bodily awareness, as a group, of the differences in time and space, atmosphere and sensation. The participants who were in these projects left feeling hyper-sensitive, experiencing an extended connectivity of their senses, and therefore their bodies.

Random Dance Company, which is based in London and led by choreographer Wayne McGregor, is known for its engagement with new technologies in staged dance work.¹⁸ Recently the company performed a new piece, *The Trilogy Installation*, as part of the Dance Umbrella Virtual Incarnations focus (Greenwich Dance Agency 12-15 October 2000).¹⁹ They sampled from their previous three works, making a melange of images and movements in layers of gauze. Digitised imagery of the dancers' bodies was used within the stage space and projected onto the gauze. This imagery was wide ranging in its aesthetic style, one section evoking fluid organisms like deep sea or outer space creatures, another made up of multiple bodies

projected in the truest of forms, creating absolute replicas of the dancers within the stage space. In one solo section, the live dancing McGregor is surrounded by the multiple clones of himself that fill the stage.

Merce Cunningham's Company, in the same Virtual Incarnations focus of Dance Umbrella 2000 (Barbican 10 - 15 October 2000), finally gave London audiences the chance to see *Biped*, a piece finished in the spring of 1999.²⁰ This used the Ghostcatcher software conceived and created by Paul Kaiser and Shelly Eshkar of Riverbed.²¹ This software enabled these 3D object creators to use motion capture techniques on seventy-one short phrases of Cunningham's choreography, (danced by two company members), which were manipulated into beautifully coloured ghost-like skeletons, twirling and weaving as projected virtual dancers amongst the company in the stage space. Mainly using a front gauze for the projection, the effect is extended by reflectors on the back cyclorama, producing the illusion of a three dimensional presence of the ghost dancers in the space.

The Random work was web cast from a single camera in the space - shadowy frames dancing on the internet site like traces from life in another planet, but neither *The Trilogy Installation* nor *Biped* were created with audience participation in mind. However both works enabled a sense of immersion for the live audience; *Biped* in particular drawing you into the

stage as if you were navigating a virtual reality environment yourself, floating through the world created on stage. Interestingly neither used touch or connection to a large extent. This is not surprising in the Cunningham piece as his concepts and techniques are known to be based on the idea of chance with random connection or disconnection. He does not set up literal links. McGregor also works along non-literal lines (hence the company name Random) but deeper examination of the natural connections between the realism of the projected body clones and the physical dancers were not explored. It felt as if several potentially magic and more intimate moments were lost by the lack of any acknowledgement of the replicas. The intent of the simulated realism becomes unclear. The comparison that comes to mind here is that of Lloyd Newson in *The Happiest Days of my Life* (1999) when he used a non-treated DV projection of one of the dancers onto a water screen with a superb three dimensional effect.²² Here the virtual and the physical bodies were choreographed into a dialogue of intense emotional connection, reflecting the narrative of the piece and deeply touching the spectator, even more so than if the duet had engaged the two physical dancers .

Company in Space is a group from Melbourne, one of the dance groups most experienced in the use of telematics. Regularly working in spaces far apart, the group splits into two, and dancers and camera dancers perform highly

structured duets creating magical mixes for the web and for projected backdrops to their live performance.²³ Watching the live work by one duo in the United States, while the other duo and the music/vision mix and animations base were at home in Australia, I saw the choreographer and dancer Helen Sky roll her head back and forth along the wall of the space (the camera zooming in). So did the dancer (and camera) in Melbourne, and the interaction came to us through a back projected image, the two dancers' heads touching, rolling forehead to forehead with one another. This group has evolved methodologies which rely on a high level of trust that allows them to be connected at a distance with strong visual and emotive results. Their new piece, *Home, not alone*, a performance premiered on 27 October 2000, has recently been emailed to its potential web audiences asking them to join in from the first night onwards. The results of these virtual interactions will be physically present in the performance. Thus the email states:

`Home, not alone: the work

ENTER> www.companyinspace.com/home/ and sit back in the comfort of your own home creating complex movies laden in personalised statements via orchestrated online participation. Watch performers on screen, change the scene, adjust lights and sound track, or send a personal message to the actor.

Re-create the site at will, but remember, you are not alone.

EXIT> and the site remains in continuous dialogue with its global audience ensuring that the works history is constantly re-created in real-time, never fixed, permanently integrated.

BEYOND THE WEB> Uniquely, Company in Space reconstitute the site by layering projections of the publics visual, aural and intellectual authorship on urban architectural structures; a new graffiti.'

Quality of touch and the visceral

There is still very little research into the experiential aspects of the performer in these physical/virtual events, and the following observations have been primarily selected from mailing list conversations on the internet. Amanda Steggell in the dance-tech list in August 2000, commented on her feelings while performing online in *Menage a Trois*:

'At the time I experienced an exhilarating feeling of power through this intimate, remote communication. Afterwards I thought, okay, so I can create the illusion of being an animated, simulated character. WoW. It made me feel a bit empty. All I need is my head and shoulders and my gear.....Get a life grrl!' ²⁴

French choreographer Jean Marc Matos created a questionnaire about telematic experiences called *Body Net Quest* for the Body and Technology conference in Toulouse in 1998.²⁵ The following questions were posed: "What image of yourself dancing (standing still or moving) would you want to send out into cyberspace?" "Can you imagine a feeling of expanded re-

embodiment through such an experience of disembodiment?" "How do you remember and/or imagine the feeling of improvising and being touched through the net?" These are still questions that require deeper exploration. The real time documentation site for *CellBytes2000* explores some of these issues with the group, participants answering all several questions put by the documentation group during the process of the workshop.

Choreographer and teacher Yacov Sharir creates choreography in which he dances with animated cyberdancers, manipulating their bodies through a prototype interactive dance surface - video, light, sound responding to movement - to interact with his body. He vividly describes the emotional reaction he had:

I felt illuminated, accessible and at times clearly disembodied, experiencing life on another level altogether. I am overwhelmed by strong and somewhat conflicting emotions, dreaming towards performance experience where the automated body emerges as a being, like the body always does. It makes me reconsider dance, whilst longing for what I have left behind and dreaming ahead. There is no 'when', no 'now', maybe no 'then'.²⁶

In the *CellBytes* work that shinkansen is producing, it is clear that presence and touch have become main research strands, emerging through the experiments this year focused on deeper intimacy at a distance. The emerging processes require further research time planned to take place in productions and residencies in 2001/02. The debate is continuous, a re-

evaluation of presence through the possibilities of enhancing empathy with the other to whom you are connecting at a distance. As yet touch response machines are still restrictive. Although our computer keyboards and ATM machines are now familiar in our everyday lives, their limitations are clear. The London Underground has new touch ticket machines which inform us that "you do not need to push the screen so hard" when we overdo the touch. In clubs in Britain fifty new twenty-first century kiosks called SPACED allow you and your friends, through multi- touch options, to take a picture of yourselves, add a text message and a background and send it immediately from the club to your friends via email. ²⁷

Perceptions of sensations are gradually being explored within the performance arts. The work of Vancouver-based choreographer and installation artist Thecla Schiphorst concentrates on the sensory expansion of touch. She created renowned touch installation *Body Maps: artifacts of touch* which was presented recently in London as part of the VIRTUAL INCARNATIONS programme focus in Dance Umbrella 2000 (ICA 10-16 October). This piece is based on touch and proximity sensors. In a darkened room a white velvet table beckons you to run your hands over it, allowing the user to select the dynamics of change in the sound and image. An overhead projector beams images of moving bodies down onto the table that you touch, linking the changing image to the dynamic of the movement of

your hands. A highly sensitive piece, the emotions experienced by the user are sometimes overwhelming, the effect of the velvet on your fingertips tricking your own perception that the body you are touching is experiencing similar feelings.²⁸

The dancers of the Merce Cunningham Dance Company, working with the projected virtual bodies in the piece *Biped* described above, are aware that they do not forget the presence of virtual bodies even when, at certain times during the piece, these virtual bodies are not being projected into the stage space. The memory of their presence remains.

Examples of the growth of intense immersion and touch experiences for the user in family and youth entertainment sectors are multiple. Imax, the in-the-round cinema immersion experience, which was first started twenty years ago but has seen an unprecedented growth in the last ten years worldwide is one example.²⁷ Disneyland's *Honey, I shrunk the audience!!*, a large scale screen with experiential effects, such as water spraying the audience when the huge dog sneezes, has made many children very expectant of the deeper feel/touch of interactivity.²⁹ These films, often shown in 180 degrees and offering wonderful naturescapes and extreme sports viewer experiences, are pioneer immersion situations for the mass public.

In the Trocadero in central London and in funfairs across Europe upgraded rides offering basic virtual reality experiences are on offer to the general public. Often semi-interactive, and based on adventure and competition these physical rides, and the video games now used by so many young people in their homes, have nevertheless given new generations an unstoppable taste for self-navigatory action-based team experiences. They are there to play a role, to perform, not just to spectate.

The need for the performing arts to explore the potential for interactive and immersive work is hampered by the access to finance and tools as much as by a lack of awareness or resistance from the artists themselves.

Consequently virtual reality immersion experiences emerging from the performing arts sector have been relatively few so far. Visual artists like Canadian artist Char Davies with the famous *Osmose* piece have shown what is possible.³⁰The world of *Osmose* allows the user to float through the natural elements of a woody clearing using breath and a small chest sensor harness as navigatory tools. Touch and physical sensations abound, even though you're not actually touching anything.

It is the most recent work by Blast Theory that has gone the furthest in the convergence of live performance and the virtual. *Desert Rain* was created in

co-production with Nottingham University and a wide range of other partners, enabling the group to have access to skills and tools not existing in the performance sector. The virtual reality experience is placed at the beginning of the piece, the audience/user becoming part of a team navigating the virtual world with clear instructions and aims. When this is completed a live actor meets the audience member, reaching through the screen of falling water, used for the projection of the environment, to lead the audience/user by the hand into the installation section of the piece. The simultaneous chill and relief of live presence was intensely physical. Studies are being undertaken into the audience re-actions in participatory events such as *Desert Rain*, a team of physiologists from the Swedish Institute following this piece on its tour around Europe.

What is the future of the physical ?

Desert Rain by Blast Theory is the type of half physical, half virtual experience that is the next step for performance work, researching in advance of the technological evolutions towards interactivity that the internet and television industries are developing. Situations involving the skills of the performer used in conjunction with people's own innate performative sense are common in television, so why not in theatre?

There are many future potentials of digital technologies: breakthroughs in gestural interfaces, sensor proximity, motion tracking and wireless applications are all in advanced development stages. The best of the new softwares is being developed by digital artists already working with performers, such as David Rokeby, (soft VNS) Rob Lovell (Voice-Image) and Kirk Woolford (punctuated ganzfelder). These artists and others are exploring ideas which take us well beyond the mouse/keyboard interface, cumbersome cables and restrictive VR clothing. In their work, multiple overlapping user-defined fields or zones are made movement sensitive, and used to activate sound and image.

In the future these technologies will interface even more deeply with the human body, expanding our sense of presence and responding to our perceptions and intuitions. The body-mind interface is the key research area at the present moment and many scientists and artists are exploring these fascinating, complex and mysterious relationships through the use of computers. People are becoming clearer that the individual user of technology is expanding their experiential world, first connecting and communicating with others and then to become *other* themselves. Can the public be considered only consumers? Or, through their connection to the web, are they also creative users, members of new communities with the power to add to the content, to interact and stimulate the debate? The

spectator-participator split is no longer sustainable and this is why I feel that it is essential for the performing arts to join with digital technologies and investigate the potential of emerging processes and forms, in particular net-enabled communication and new forms of presence.

At the New Bodies, New Realities Live Chat Room (Virtual incarnations, Dance Umbrella/ICA October 2000) Merce Cunningham, now in his eighties, concluded his thoughts on working with digital technologies with the following:

It has always been essential to me to recognise in my work, if I have written out a movement or step, to be sure I've used something other than before. If I find it, I drop it, throw it out the window, so to speak, and just find something else, so one isn't physically always dependent upon certain manners. I see that very often in dancers, they find ways of going from one movement to another that is comfortable for them and they use it all the time. You should drop them, because it puts you in an awkward situation again, when you have to find it over. My use of technology has done that for me, it keeps you seeing something that, 'oh, I never did that, I've never tried that', so I go and try it. I think it is essential in any way of working not to let your thought patterns become patterns or become familiar but always stay awkward. Then you have to find something else, that is what is so interesting about these ways of working

Ghislaine Boddington November 2000
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¹ trAce Online Writing Community is based at Nottingham Trent University. Sue Thomas, its artistic director talks about multiple identities on the web: " You can't talk about virtual life without somebody mentioning Multiple Personality Theory, and it's true that virtuality does require a certain agility in terms of a core identity. The perceptual shift required is probably similar to that made by the first movie audiences, who had to appreciate the translation of 3D into 2D. Some people simply couldn't assimilate what they were seeing in order to be able to recognise the images on the screen, and likewise visitors to virtuality often can't disable their own reality-sensors enough to accept that people and places here are 'imaginary - except that they're real as well'. It's an everyday experience for most moors to *be* several people at the same time, to carry on several conversations and several different types of relationships, to have several different genders and inhabit several different bodies - and to do all of these simultaneously. Many even keep windows open to several moos and so may be a princess in one and a frog in the other! In one window, if they are very brave, they could take on that most terrifying of all personalities - the 'real' one. These multiple bodies are called 'morphs'. They are variations upon the default body, each with its own name, gender and description. Sometimes the description sounds astonishingly real, at other times it may be utterly obscure, but most generally fall into one or another of a number of universal Jungian archetypes. The virtual player, however, does not need to understand psychology in order to appreciate the delicate maneuvers between one morph and another, and the morph bodies are often adopted instinctively as the player moves from one mind state to the next." See extensive site and join in at <http://trace.ntu.ac.uk>

2 'Avatar' is a Sanskrit word meaning incarnation.

3 Ultima Online-Britannia is an internet premiere virtual world, a role-playing game access through web connection www.uo.com

4 Writer Ken Hillis in his book Digital Sensations (University of Minnesota Press, 1999)

5 Site for Copenhagen International Theatre (KIT) <www.kit.dk>

6 Site for Dance 2000 Munich <www.dancemunich.de>

7 Site for Jennicam <www.jenniarchives.com>

8 Site for information on Paul Sermon and his projects <www.paulsermon.org/>
<www.aes.at/futurelab/artists-raw/telematicdreaming.html>

9 Site for Blast Theory London <www.blasttheory.co.uk>

10 Big Brother is a reality show, where members of the public put themselves under TV cameras day and night to be watched by millions of public on television, the web and on big screens in public squares throughout the world. It has taken place in several countries worldwide during 2000. It is a good example of the public's interest in real time transmission <http://www.bigbrother.terra.com/frames_news.html>

11 M@ggie's Lovebytes is a dance theatre performance occurring in real and virtual (net) space <www.notam.uio.no/~amandajs/>

12 Menage a Trois was a ten day site specific and online performance and installation.
<<http://www3.sympatico.ca/mteran/menage>>

13 Site for <www.aec.at/festival2000>

14 FUTURE PHYSICAL is a programme focus 2001-2004, the research theme of shinkansen <www.futurephysical.org>

15 CellBytes2000 - a dual stage telematics research residency initiated by shinkansen with ResCen Middlesex University and Institute of Studies in the Arts, Arizona State University. The inter-authorship process and the dramaturgical methodologies of the content/technical weave as it evolved is shown in the real time documentation link on site, You can also download 6 Quick Time movies, archived outcomes from the residency at <http://www.mdx.ac.uk/rescen/Ghislaine_Boddington/workshops/cellbytes00.html>

16 The second CellBytes project Corpus Online was initiated by shinkansen/Forum Danca and supported by the Ministry of Culture Portugal and the British Council for Portuguese artists to explore lo-tech potential of dual stage telematics. New sites reflecting the workshop and the ideas developed by the group in relationship to web connected performance and the future of the physical body include <http://www.mdx.ac.uk/rescen/Ghislaine_Boddington/workshops/corposonline.html>

17 Lisa Naugel's response to an email debate about the inter-authorship process in use on CellBytes2000 is not yet archived at the dance tech site as only received this summer. <www.art.net/dtz/archive/>

18 Random Dance Company's new performance The Trilogy Installation was web cast live from this site 12-15th October as part of Dance Umbrella. The work of Wayne McGregor and his group. The work of Wayne McGregor and his group is shown at <<http://www.randomdance.org>>

19 Virtual Incarnations is an ongoing focus in the Dance Umbrella Festival London co-conceived with Ghislaine Boddington (shinkansen/ResCen) to look at the use of the virtual and physical body in dance. www.danceumbrella.co.uk/archive/2001/virtual2001/index3.htm <www.futurephysical.org/pages/programme/past_events/vi_2002.html>

20 The Cunningham Company, a New York-based company led by the prominent choreographer, Merce Cunningham. Cunningham has been the major pioneer, integrating dance and technology across many years. Information on 'Biped' and other recent works by the company, and links to a performance schedule and to dance-studio details can be found at <<http://www.merce.org/>>

21 Riverbed is a media studio, incorporated in 1994, engaged primarily in producing the individual and collaborative artworks of Paul Kaiser and Shelley Eshkar. They are the digital artists who have created Ghost Catching software for dance which is being used by Cunningham in his work 'Biped'. The performance of 'Biped' and an installation by Riverbed and Cunningham were at the Barbican as part of BITE 00 and Dance Umbrella 2000. <<http://www.riverbed.com>>

22 Site for DV8 Dance Theatre <www.dv8.co.uk/stage/the.happiest.day/the.html>

23 Site for Company in Space Melbourne <www.companyinspace.com>

24 Site for Dance-Tech list

membership<www.art.net/Resources/dtz/archive/DanceTech98/0234.html>

25 Body Net Quest was initiated by Jean-Marc Matos for the Body and Technology Conference held at the 'Odysud' Cultural Centre in Blagnac, Toulouse, May 1998

26 Personal notes received from Sharir summer 1998

27 The Spaced pods are located in clubs around the Britain.<http://www.slice.co.uk/spaced_intro.html>

28 Site with some information on the Body Maps installation by Thecla Schiphorst International Dance and Technology conference (IDAT99) (held at Arizona State University, USA in February 1999) this piece was mentioned as one of the best ever truly effective installations relating to touch and the body, having been recognised by its extensive touring and award winning worldwide. Richard Povall, Senior Fellow at ResCen Middlesex University London recalled the piece and then realised that the memory of the sensation of velvet on his fingertips was being repeated as he spoke. Site for Imax cinema <www.internetnews.com>

29 Site for Disneyland Paris <www.honeydisneylandparis.com/uk/>

30 Site detailing Osmose by Char Davies www.ace.co.uk/seriousgames/davies.html <www.acmi.net.au/char_davies.htm> <www.immersence.com/osmose/osmose.htm>

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