

Choreographic Objects: *Stifters Dinge*

Johannes Birringer

Heiner Goebbels's *Stifters Dinge* is a performative installation, first presented at Théâtre Vidy Lausanne in September 2007 (recreated in Berlin, Luxembourg, London, Frankfurt, Munich, New York and other venues), in which sounds, amplified voice-overs, machinic and visual arrangements, objects and materials, instruments and sound machines, light and filmic projections become the performers or constitute what I will describe as the features of a "choreographic object."

With the exception of two stage-hands/workers who tend to the water basins in the first section of this performance-installation, there are no human performers or instrumentalists. In other words, as one of its most unusual characteristics, this installation performs itself. Thus the attention is directed at the overall sonic scenography or machinic choreography materializing its *Lauf der Dinge* (to use a reference to Fischli/Weiss's notorious kinetic chain-reaction piece, *The Way Things Go*, 1987) and enunciating its "thingness," its multifarious object-presentness. The states of these "things" change over time, almost as if the matter at hand, the particles and part-objects, could transform according to seasonal or temperamental changes in their condition of being in the world, their appearance in front of us as they move towards us and retreat, mechanically and meta-physically, visually and sonically. The overall impact of this event is nothing but stunning, unforgettable and perplexing. And it begins even before the audience are let into the cavernous Ambika P3 warehouse underneath London's Marylebone Road.

"Things" as protagonists – a striking concept certainly for music theatre and the performing arts but perhaps less so for media/kinetic art within the 20th century tradition of conceptual art that stretches from Russolo's noise machines, Moholy-Nagy's Light Space Modulator, Duchamp's *objets trouvés* to Christian Marclay's turntables, sculptural pieces and "screen plays" (recently exhibited in a Whitney Museum retrospective in 2010) via John Cage's prepared pianos, radios or his multimedia "Lecture on the Weather."(1) Goebbels is well known as a composer of music and theater works (including earlier collaborations on texts by

Heiner Müller such as *Der Mann im Fahrstuhl* and *Die Befreiung des Prometheus*, and the later *Landschaft mit entfernten Verwandten*, *Hasirigaki*, *Schwarz auf Weiss*, *Eislermaterial*, *Walden*, *Surrogate Cities*, *I went to the house but did not enter*) and often combines a range of eclectic sources and musical genres embracing classical, pop, jazz and traditional music, as well as sources drawn from literature and anthropology. He is also a professor at the distinguished Giessen Institute for Applied Theatre Science and currently Artistic Director of the Ruhrtriennale in the vast industrial metropolitan area in West Germany. The setting for *Stifters Dinge* is decidedly industrial: Ambika P3 (a former concrete-testing facility) is often used as an exhibition site for art and architecture and has a raw structural appearance. Our entrance into the space is guided by Artangel's stage managers who lead us up and down across various temporary staircases until we gather at the top in front of a black curtain. Hidden from view, the "machine" is already sounding acousmatically: deep pulsating sounds are heard from beyond as we await the final descent into the "house."

Artangel had co-commissioned the initial premiere (with Théâtre Vidy Lausanne ETE), and now bills the second coming as a "revisiting" of the work, offered in two versions, first as a free "Unguided Tour," secondly as a ticketed performance. The tour provides audiences with an opportunity to walk around and explore the huge machine set with its stones, metal, barren tree trunks, pianos, water reservoirs, rain, fog, ice and hidden voices which seem to spread out over the entire ground floor of the warehouse. At one end there is a raked platform on which we take our seats for the performance, looking at three large flat basins constructed in front of the five upright pianos at the back, naked instruments revealing their interior strings.(2)

Before I describe some of the aspects of the machinic architecture, I want to evoke the notion of the "choreographic object," coined by William Forsythe who recently began to exhibit installations proposing movement possibilities of interaction to participant audiences. "Is it possible for choreography," Forsythe asks, "to generate autonomous expressions of its principles, a choreographic object, without the body?"(3) The answer is, yes, such installations can form a self-sufficient evolving ecosystem, extending beyond their objectness to become ecologies for complex environments that propose dynamic constellations of space, time and movement. These "objects," for example *The Fact of Matter* exhibited at the Hayward Gallery (*Move: Choreographing You*, London, October 13, 2010 – January 9, 2011), are in fact propositions co-constituted by the performative environments they make

possible. They urge participation. Through such objects, space-time, relational environment and text (spoken words) can take on surprisingly new resonances. The “textual” dimension of contemporary tanztheater (since Pina Bausch, William Forsythe, DV8, and more recently, Ivana Mueller or BADco.) is a particularly interesting (and under-acknowledged) phenomenon in choreography, and its role in installations like *Stifters Dinge* deserves a closer hearing.

What are these resonances like? From a listening perspective, the various movements of *Stifters Dinge* are clearly structured, as the environment is being prepared for its opening sequence of transformations by the two technicians. Before they come on, the sounding installation in front of us is idling, like a game waiting to be played, small thumping and screeching sounds are heard from five small speakers on the sides (with tiny LEDs that light up when the speaker speaks), three speakers behind us, and the subwoofers. The five prepared pianos are at the other end, stacked with upright branches of trees stripped bare of their leaves, one of the pianos conjoined to a copper plate quivering with vibrational touch of two small drumstick tools. Circuits on pianos have small flickering lights; four are upright whilst the baby grand to the left is turned on its side revealing its insides to us. This particular piano emits dry ice from time to time and is also joined to a “plastic bag” instrument, a character that seems only to have a very small part. There are instruments on the walls to either side – tubular style to the left, and two wall mounted instruments to the right. Three white vat containers of water are positioned to the left of the three central flat basins lined in tarpaulin, with tubes leading out of them that would later deliver the water to the basins (once the tap was opened by the technicians). All along the right side of the basis runs a stone plate that is pulled across a line of flat square stones on a wire contraption with microphone, emitting a soft screeching sound.

Two technicians walk on, traverse the length of the space and disappear, re-appearing moments later carrying a large black rectangular sieve. Salt is systematically poured from two black containers – handled carefully by the two technicians, passed from one to the other and back in a choreographed way. One technician pours the salt into the frame of the sieve positioned at the edge of the first basin; the container is handed back to the other technician. The two hold the sieve on either end and begin the process of sifting salt, a process that generates a subtle and grainy sonic texture as fine salty grains hit the tarpaulin surface, and

an anticipation of what is to come. This is repeated twice more to complete the adding of salt to the three basins.



Stifters Dinge, by Heiner Goebbels. Side-ways view of the water basins and reservoirs. © 2012 Courtesy of Artangel. Photo: Mario del Curto

Next comes the delivery of the water, each plastic tube (starting from the tank furthest away from the audience and coming to the closest one) carefully and methodically laid out, the end placed at the edge of the basin just overlapping – each with a right angled bend at the end nearest the tank to create a regular pattern of the tubes on the floor of the space. The taps are turned, again one at a time, then we see the tubes fill with watery fluid, changing their translucency. Then the water after traversing the tube is emitted into the basins. We wait expectantly for this, knowing what will happen and enjoying the ejaculation of the tube, slowly softly flowing into the basins, filling them and the reflections in the watery surface

begin. This process is repeated for all the basins until we are looking into three reflective surfaces, strips of light subtly affecting the physical surfaces in the reflective whole, and before we realize it, semi-transparent screens begin to be lowered, silently by invisible mechanical devices, while in the distance the plaintive “Incantations for the southwesterly winds” (*Karuabu*) can be heard – old field recordings from 1905 made by Austrian ethnographer Rudolf Pöch in Papua New Guinea. Soon the watery surfaces, with rain drops falling from above, begin their refracted play on the vertical planes.

Then comes the moment when silence falls and the first (male) voice, spoken with a Scottish accent, is heard: ‘I have never seen a thing like this before... I saw the village fountain. It was boarded up with planks of wood, covered in insulating cloths and stood like a lonely mountain of ice... When we came out into the open fields we heard a muffled crashing sound, but weren’t sure what it could be . . . On the embankment we saw a glittering willow tree, its sturdy silver branches hanging down as though someone had combed them... We saw in front of us a delicate spruce fur bent into an arch over our path, like a triumphal arch of the kind offered to the returning emperors. The weight and splendour of the ice hanging from the trees was indescribable...’

As we listen to the voice, we gradually notice that the scrims in the front and the middle have vanished, and before our eyes just the rippled surface of the water remains, while in the back, first obscure, then slowly more visible, the contours of a projected landscape appear to take form, a still image seemingly suspended in time, revealing a forest (Jacob Isaacksz van Ruisdael’s painting *Marsh*, 1660, now in the Hermitage collection in St Petersburg) that transforms, over time, in its color saturation, from purple to blue and back to brown and grey, until it vanishes, these coloring impressions caused by theatrical side lights falling onto the virtual canvas. The lighting thus causes the changes in our perception of this natural landscape while our minds are propelled ever further into imaginary wintry spaces evoked by the voice reciting Adalbert Stifter’s minute descriptions, taken from *Die Mappe meines Urgrossvaters* (My Great Grandfather’s Portfolio). Little known in the English-speaking world, this late text (1841) by the Romantic Austrian writer is a masterful language-painting, quietly detailing the kind of awesome beauty and indifference of nature that would haunt the sublime paintings of Caspar David Friedrich and other artists of the 19th century Romantic era, and I quote an extraordinary passage from the end of the recitation which may well have inspired Goebbel to choose the title of his installation:

The roaring, which we had heard earlier in the air, was familiar to us now. It was not in the air, it was close to us now. In the depths of the forest it resounded uninterruptedly, and came from the twigs and branches as they splintered and fell to the ground. It was all the more terrifying, since everything else stood motionless. Then all was silent again. We listened and stared – I don't know, whether it was amazement or fear of driving deeper into that thing...

New sound takes center stage, but we are not sure what the center is, as suddenly attention is drawn to the long tube on our right, a flap hits its mouth at one end, mechanically driven, and a hollow tone emerges, while in the back the prepared pianos begin to play Bach's Italian Concerto in F-Major (2nd movement), the keys playing notes again by invisible causation, somewhere there must be the motors to drive this and interconnect objects, tableaux and sound events, the rippling echoes, the clamour and the whisper of things. Somehow a choreographic system is operating here to allow these seemingly autonomous acts to materialize together and consecutively. Stifter's narrative voice evokes the Kantian sublime, the amazement and terror that might grip us when facing the imponderable and abysmal, threatening us to lose ourselves "into that thing..."



Stifters Dinge, by Heiner Goebbels. View of the water basins, reservoirs, and van Ruisdael's projected painting, with visitors during the Unguided Tour © 2012 Courtesy of Artangel. Photo: Ewa Herzog.

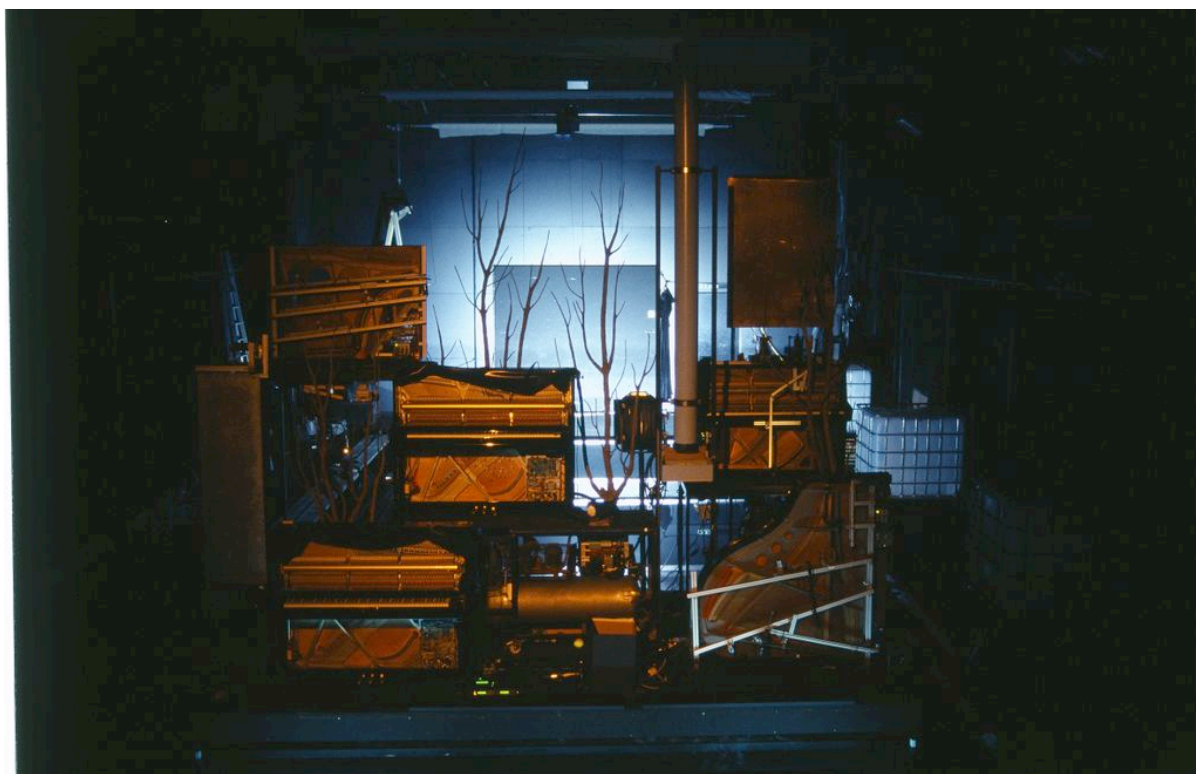
Goebbels's machine thrives on these transformative moments when the scene escapes our grasp or resists our projections into the phantasmatic core of this mute and yet mutable landscape. Other memorable and complex scenes arise from the play of different languages we hear, for example a radio conversation in French between an interviewer and ethnologist Claude Lévi-Strauss which begins with insistent questions regarding the last undiscovered places on earth (Lévi-Strauss suggests there are none left), while the grand piano appeared to be smoking or creating a dimly lit piano environment reminiscent of a smokey jazz club in the 1930's perhaps. On the subject of relations to other human beings, Lévi-Strauss notes that he had lost faith in humanity, and if he had wanted friends he would have sought them out but instead he prefers to acknowledge: "I am solitary by nature..."



Stifters Dinge, by Heiner Goebbels. Frontal view of the water basins and prepared pianos at back, reflected in the water. © 2012 Courtesy of Artangel. Photo: Mario del Curto

Some of the other voices we hear are almost unintelligible, not crisp and clear like the Stifter narrative but more muffled, disturbed through deep rhythmic beats and a moving small screen in the foreground, roaming around again invisibly driven by a motorized pulley system, searching for fragments of the second painting projected all over the back (where we cannot decipher it). We only see the “close-up” captured on the small moving screen – down, down a little further, then across to the right, then to the left, as if scanning the image (Paolo Ucello’s *Night Hunt*, circa 1460, painted in tempera on wood, in the Ashmolean Museum collection in Oxford). Again, this is a perplexingly beautiful moment, a kinetic screen scanning an image, in a virtual osmosis of foreground and background projection space.

While we follow this mesmerizing scanning of *Night Hunt*, we overhear William Burroughs’ muffled voice (“Listen to my last words any world, listen all you boards, governments, syndicates, nations...”) and then Malcolm X speaking about the shift of power, from Europe to the USA, from the white colonizers to the black revolutionaries, insisting again and again, as his voice fades, that the world will have to resituate its understanding of who sits on top and who is sat upon. The choreography of architectural space is now changing: pulled by invisible wires and rolling on tiny wheels, the backstage pianos are moving towards us across the water, separating on platforms and creating space between them. The hunt of the



Stifters Dinge, by Heiner Goebbels. Frontal view of the pianos on platform moving forward and separating. © 2012 Courtesy of Artangel. Photo: Mario del Curto

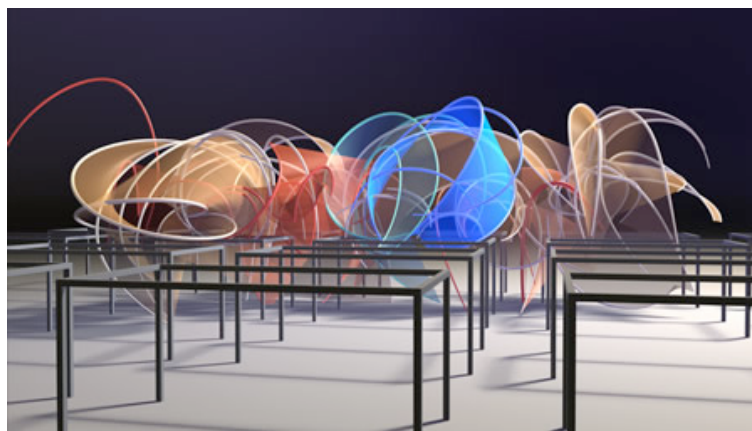
painting, projected onto the moving pianos, floods the space, expanding, seeping onto floor and back walls, and when the pianos pull back, we notice that dry ice must have fallen into the water surface, as little puffs of smoke rise up, mysteriously and incomprehensively. The water is beginning to freeze and yet keeps moving, as the installation interweaves moveable tableaux with the wailing sound of “Kalimérisma,” traditional Greek song in chromatic style (recorded in 1930 by musicologist Samuel Baud-Bovy).

What *Stifters Dinge* provokes is in fact a listening to, as well as a watching of, mechanical-organic movement subtle and “internal” like a butoh dance of metamorphosis, a dance that cannot be discerned through causation at all (unlike the chain-reaction of *Lauf der Dinge*) – the form of this choreography is post-human and yet paradoxically resonates through a wide register of impressions of time, history, location, landscape, art and politics, memory, autobiography, ethnographic field recordings, contours of aural and sensorial materiality, noise and music, harmonies and disharmonies that are exchanged or coincide, impacting our subjective experience of all this, the phenomenological reality of a possible world or worlds, not tied to logic but expanding our entire sense of what a logic (causation of events, sequential narrative, action) might be or might have been.

I begin to think of this machining architecture as a choreographic-kinaesonic thing, a constructivist composition that has enabled material agency like a motor (and a complex software control system for all the circuits in operation) inducing forces for a fluidic logic forming and deforming relations between all the elements, animating the design-in-motion we perceive through audiovisual rhythms that seem to have their own stubborn and proliferating complexity. When choreographer William Forsythe speaks of principles of organization, of movement in time and space, emphasis will reside to some extent on dancing bodies that perform such movement, even if Forsythe is also quite interested in the *algorithms* themselves, and the data that can be extracted from the organizational patterns (<http://synchronousobjects.osu.edu/>) of such movement over time.

Therefore, recalling the Bauhaus *Mechanical Cabarets* and Moholy-Nagy’s *Lichtspiel: schwarz weiß grau* (1930) created as a kinetic assemblage/sculpture with his Light Space Modulator, built to produce mesmerizing shadow and light effects, the spatial, organizational and structural armature of Goebbels’ installation not only expands the trajectory of theatrical design-choreography and acoustic ecology (described in R. Murray Schafer’s *The*

Soundscape: Our Sonic Environment and the Tuning of the World [1977]) but has significant conceptual ramifications for contemporary digital performance, dance, and installation art. When we look at the transposition of Forsythe's choreography for *One Flat Thing, reproduced* to the animated recombinations in *Synchronous Objects*, for example the Generative Drawing Tool or the 3D Alignment Forms Object, we glimpse many undercurrent relationships to Oskar Schlemmer's furnishing of design-in-motion and Moholy-Nagy's kinetic modulator. Noticeably, *One Flat Thing, reproduced* is performed on unusual spatial ground: twenty tables form the matrix of choreographic space and the topological grid for some of the sculptural data processing and vector graphics in *Synchronous Objects*.



3D Alignment Forms within *Synchronous Objects*, taking a sampling of dancers' alignments into three-dimensional space creating volumes between them to generate new sculptural-spatial configurations. Video still from <http://synchronousobjects.osu.edu/>.

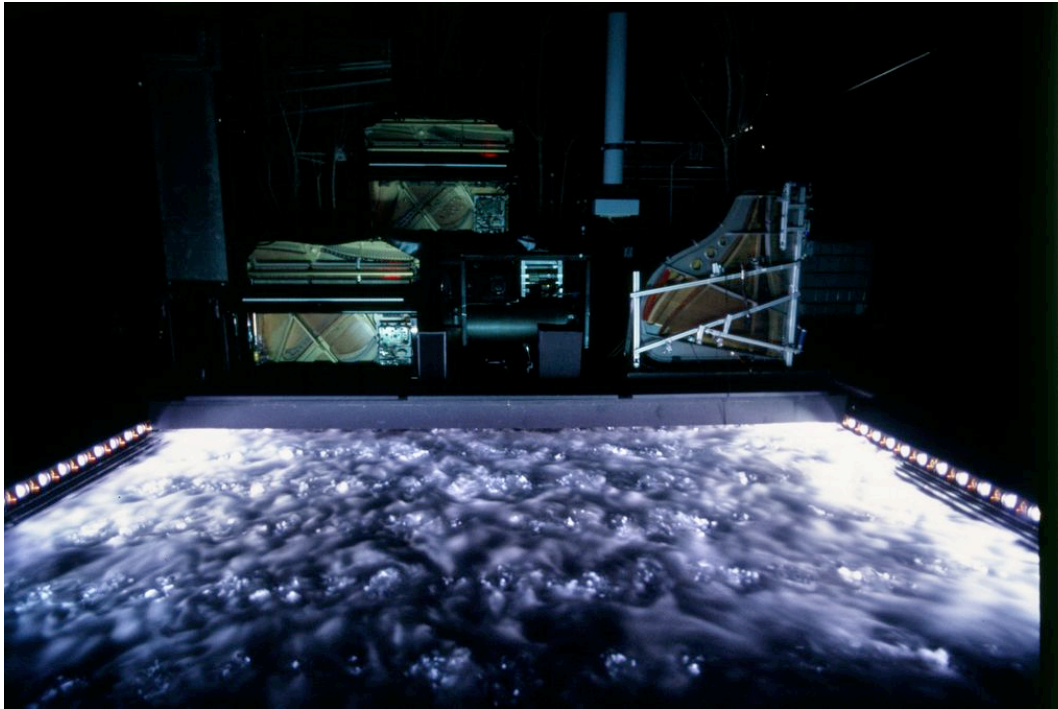
The artists and researchers working on *Synchronous Objects* analyze and creatively redeploy spatial and statistical data from the dance, re-visualizing the kinetic *dispositif*, and thus re-mapping the distributed flows of the dancers' movements, providing tools that allow us to trace, re-imagine and re-draw spatio-temporal behaviors from the dance, experiencing the kind of complex sceno-choreography described here. The re-gathered and re-imagined objects thus also act as scores or scripting systems, potentially generating new knowledge (obtained from the measurements) about the hybridization of diverse materials and forces. The *Synchronous Objects* project "is actively pursuing the problems of mapping and measuring of distributed flows within a contemporary scientific framework," suggests architect Stephen Turk:

Forsythe, through *One Flat Thing, reproduced*, might be said to be situating these ideas as a central feature of a post-humanist system of knowledge whose salient figure of study is the manifestation of a new type of statistical or probabilistic identity. This is an identity that is not an ideal humanist centered singularity (a self in

the classic sense) but rather one that is conditioned by and constituted out of the flows of modern society; a society in which individual identity is increasingly distributed across electronic networks and broad ecologies.(4)

When composers lecture on samples of their recorded music, they often hand out the score for us to follow what we hear. What would Goebbels's score for *Stifters Dinge* look like? We don't know, there are no tracteries, tabulations and diagrams, only the "unguided tour" of the *Dinge*. We hear this performing scenery, its pumping sounds and groans, its poetry of voices, and at the end we even glimpse a page of Stifter's handwriting (from the facsimile of the third edition of *Mappe meines Urgrossvaters*) projected onto the watery surface, the writing slowly dissolving over time, having lost all solidity just as the "prepared voices" have now vanished from the stage.

The machining architecture in-forming installations such as this one, which appear disembodied but impart a tremendous fascination with the internal mechanics of its operation, presents a challenge to the aesthetic and scientific imagination. It evokes, following Lars Spuybroek's suggestion that architecture is an art of crystals, an awareness of small changes, of a cosmology in the small, so to speak.(5) After the performance at Ambika P3 many audience members walked close to the sculpture and took close-up photographs of the tiny microphones, the circuit boards on the pianos, the basins, and the instruments, as if they wanted to figure out the hardware and software elements of *Stifters Dinge*, the coalescence of electronics and architecture, fluids and lighting/sound producing contraptions – the principles, in other words, of the form. This opens up a whole set of questions also about audience expectations and receptions of such audio-visual works which set in motion a continuous oscillating flow of distortive physical and aural movement, ex-changes between phase-states and phase-shifts that place the artistic work closer to a scientific experiment or a transgenic (artificial) world with generative potentials.



Stifters Dinge, by Heiner Goebbels. Frontal view of the “ice” water affected by dry ice dropped into the fluid.
© 2012 Courtesy of Artangel. Photo: Mario del Curto

While *Stifters Dinge* thus interrogates the possibilities of music theatre/installation in the era of interactive sci-art, it also hints at the sense of melancholic loss associated with the idea of the post-human. Goebbels’s reliance on found music and sound, distorted by the machinic generative complexity, conjures up a haunted scene of remembrance – these landscapes (of romantic provenance) intone a natural rhythm of seasonal change and especially evoke a wintry season, a frost that has political ramification if we listen carefully to the voices from the past (anthropological, political, literary). It is a frost that includes a past theatre – including the utopian alchemy Artaud envisioned – now exposed to the bio-technological processes and robotic/AI tendencies to simulate “operational” qualities of movement and the transformative impact kinaesthetic movement has always had on the human body, spirit and imagination. As we sit (or walk) through *Stifters Dinge*, guided only by our belated imagination and awareness of entropy, we are reminded of John Cage’s insistence on silence and sound, his interrogation of the dignity of sound and of “weather” – and at one point Cage envisioned music performed by animals and butterflies, while his “Lecture on the Weather” is in fact an unambiguous indictment of US misdirection of politics while also implying a yearning for Thoreau’s appreciation of the natural world. Goebbels’s machinic landscape does not echo such yearning; I cannot imagine Goebbels to be a naturalist or to collect mushrooms, but *Stifters Dinge* performs an archaeology of time and leads us into a complex

hollow space, a thermodynamic and information-theoretic entropic cave where voices, music, sounds and matter coalesce into a sad journey retreating to icy Stifteresque existence, amazed with fear of driving deeper into a black hole. The idea of the entropic, according to physicist Akram Khan (Brunel University), involves proportional relations to disorder and structural decay, a verging towards the formless (we know the cosmic universe is gradually expanding), and Khan explains this through the current research on cosmic rays that shoot particles through us. These particles can be imagined as ghostly carriers of information that act like instructors, passing information through us about the past and possibly a past reaching as far back as the origin of the known universe, even though we may never know this origin – and here particle physics becomes as mysterious as the whispers and virtuosic sounds of things in *Stifters Dinge*, edging to the margins of sound, to the fragility of a crack in the probability of a phenotypic landscape.

What is this entropic landscape? If we were to look at *Stifters Dinge* as a scientific experiment, would small environmental changes in the landscape cause the process to become extinct, would the peculiar sampled voices and recitations, transposed and distorted and detached from bodies, gradually lose their semantic meaning (and their accents) completely and fade, breathless, into mechanical logarithms – conjugated with different temperatures – of recorded but inexplicable sonic sources, sound and EVP phenomena from a distant past? Have the ecological catastrophes, possibly evoked in Stifter's narrative, already taken place and we merely project human causes to things that move, like the stone that is pulled across stone, a small seismic event without known consequences? Goebbels' machine is hardly non-human, and the presence of the technicians adds a lovely ironic touch to the notion that this is a "no-man show." Their choreographic tasks fuse with the machining architecture, and after tending to it, in extension, we tend to its sounding and its movement through the phase-shifts as it plays out its contrapuntal effects and dynamic force relationships. The withdrawal of "real" bodies, like the apparent decaying sequences of voices and projected landscapes, thus generates something like a dreaming time – a relative theatrical entropy which carries on directly from discrete to continuous distributions, evoking an infinite set of probabilities. *Stifters Dinge* is a *slow* interactive installation, in the sense that the plasticity of its animated objects folds into a continuously renewed dance of expansive virtual behavior, untouchable remembrances, subvisible microscopic structures, the physics of sensate environments, multisonorous rhythms, noises and forces, and it does

not require our immediate response. It performs our moving into the indescribable thing we don't know. It forecloses nothing.

Stifters Dinge, performance-installation by Heiner Goebbels, at Ambika P3, London, curated by Artangel, Unguided Tour and Performances: November 4 - 18, 2012.

Notes

(1) Composed in collaboration with Luis Frangella, who produced the film, and Maryanne Amacher, who made the recordings on tape, the original performance (1975) started with Cage reading the lecture-preface. In it he expresses his disgust with the institutions of American government. After that the work starts, the twelve men (in the score Cage specified that the composition is for "12 American-speaking men, preferably Americans who have become Canadian citizens, who also vocalize or play an instrument") reading and singing text fragments by Henry David Thoreau, and/or play instruments (ad lib.). In Part 1 this is accompanied by sounds (on tape) of wind and in Part 2 by sounds of rain. In the third part the lights in the performance-space are dimmed and the performers are accompanied by the film and the sounds of thunder. The film consists of Thoreau drawings, printed in negative, the projection resembling lightning (white on black). The multimedia stage work had been commissioned from the Canadian Broadcasting Corporation in 1975 in observance of the United States bicentennial. See: http://greg.org/archive/2011/07/04/john_cages_lecture_on_the_weather.html

(2) Sarah Nicolls Kingdom, a colleague in the Music Department at Brunel University, is at the forefront of recent experimentations with exposed, "inside-out" prepared pianos, and in 2008 played several dismantled pianos – the instruments having the strings placed vertically above the keyboard, so that both the keys and the strings are immediately accessible from the playing position.

(3) Cf. William Forsythe, *Suspense*, exhibition catalogue, ed. Markus Weisbeck (Zürich: Ursula Blickle Foundation, 2008), p. 5. Along with researchers at The Ohio State University's Advanced Computing Center for the Arts and Design, Forsythe has also published *Synchronous Objects* (<http://synchronousobjects.osu.edu/>), a web-based research archive detailing various recombinations of visual, descriptive and sonic analyses of a dance work, *One Flat Thing, reproduced*, transformed into a creative resource for exploring space making, movement, spatial composition, and the complex, multi-layered, 4-dimensional construction of kinetic events.

(4) Stephen Turk, "Tables of Weights and Measures: Architecture and the *Synchronous Objects* Project," in Gabriele Klein and Sandra Noeth, eds., *Emerging Bodies: The Performance of Worldmaking in Dance and Choreography* (Bielefeld: transcript, 2011), p. 198.

(5) Lars Spuybroek proposes that form generation is dependent on organizational systems and material processes that are linked through forces; these forces can mobilize and change actual materials (e.g. viscous states), and thus form can actualize through "machining" or "material machines": "Machines connect only to each other, as molecules, which means *the phases in a process need to be steps in a procedure.*" The intertwining rules, one might add, function like algorithms (in a choreography). Cf. *NOX: Machining Architecture* (London: Thames & Hudson, 2004), pp. 8-9. The idea of an archaeology of "cosmologies in the small" is derived from Alan Sondheim's discussions on avatar performance in Second Life (empyre maillist discussion on "Critical Motion," May 2009).

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