

Paola Antonelli visits humanoids
Erin Besler & Ian Besler patrol frontiers
Jacob Comerci dusts off Kunsthal I
Thomas Daniell reboots Expo '70
Nicholas de Monchaux & Ken Goldberg reject the singularity
Elizabeth Diller rolls out a new idea
Adam Fure chews on hyperobjects
Chuck Hoberman tinkers with geometry
Greg Lynn advocates giant robots
Güvenç Özel calculates BecOmings
Antoine Picon liberates automata
François Roche & Camille Lacadée instrumentalize fluids
Fred Scharmen retweets a house
Alex Schweder asks architecture to dance
Chelsea Spencer & Johannes Staudt actuate the Parnsworth
Jordan Squires outwits a chess puppet
Patrick Tresset automates the artist
Andrew Witt codes a precedent crawler
Liam Young spies fiducial markers

Log

Winter 2016

Log

WINTER 2016
ROBOLOG

34°28'N, 135°31'E

Suita, Osaka, Japan

Anything could have happened here. Nothing would have been too strange. [Expo '70] was visited by half the population of Japan, so everything was possible. The emperor was present for the opening ceremony, showered by cherry blossoms. Had this taken place at the forecourt of the Hall for State Ceremonies in the Imperial Palace, it would have commenced with a traditional music performance accompanied by masked dancers, but beneath Taro Okamoto's Tower of the Sun and the Big Roof designed by Kenzo Tange's team, they were instead surrounded by clumsy products of technology. The giant robots Deme and Deku rolled about, blowing smoke. They were surely seen as substitutes for the Buddhist guardian deities Agyō and Ungyō, which were themselves derived from the Greek god Heracles. The only thing missing was Godzilla.

36

\$15.00



36

spurred by nonhuman interfaces. A map of "environmental tolerance zones" shows a human figure surrounded by two concentric circles and radiating vectors representing environmental stimuli such as noise, light, carbon dioxide, atmospheric pressure, and so on.¹⁷ The innermost circle represents the "environmental comfort zone," where an ergonomic interface would mitigate harmful effects of the environment. Space centers on the human, and the interface produces comfort. A nonhuman interface requires a different diagram — one in which the human moves to the fringe of some massive entity with unknown dimensions. Vectors emanate from the entity and intersect the human obliquely. The interface is the sliver of provisional contact between the human and the environment or hyperobject. Where Dreyfuss's map is a closed system in which humans remain central and protected, in a nonhuman map humans occupy the edges of spaces that emanate from hyperobjects. This is where design today speculates on new types of interfaces and where radically novel forms of human engagement with the world can be proposed.

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François Roche
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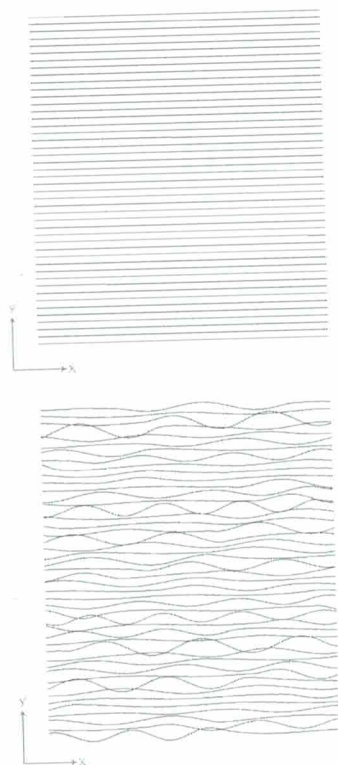
MMYST vs. concrete[i]land

PREAMBLE

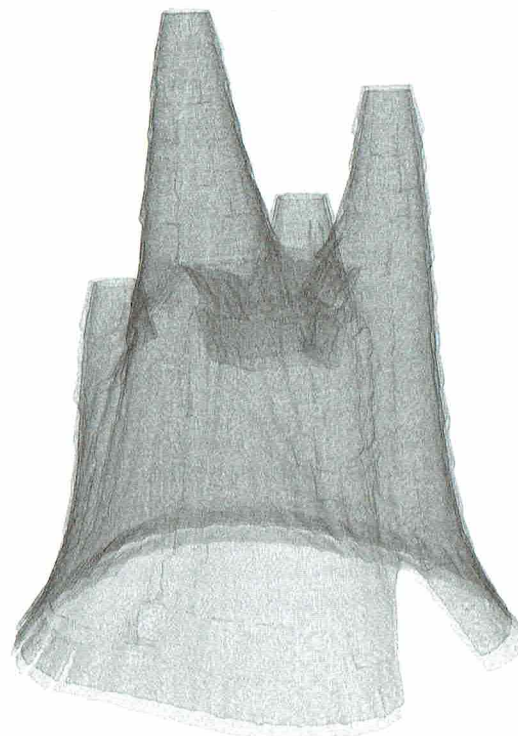
The play is between two characters, twins Thanatos and Hypnos, using machines and mind machines as alibis for their obsessions, as a correlation of their phantasms, an extension of their own niche of discourse. In the following dialogue, they add to the recurrent debate: scientific idealism vs. anthropocontingencies.

Thanatos embodies a Georges Bataille-addicted subject, using every excuse to manipulate and extract what lies under the carpet, hidden because it constitutes scatological, improper, incorrect matter that is pushed away from the visible spectrum of daily social routine. With his pathological motion-emotion tracking, he perennially tries to demonstrate the discordance between scientific assumptions and human contingencies... proving through their respective failures, like a Nietzschean research on vitalism, the life and death drives, simultaneously... as an aesthetic of their confrontation, antinomy, and direct antagonism, navigating through the traceability of their ambiguous sweating secretions, stinky metabolization, and necrosis. His cynicism is not cynical in the contemporary manner, but refers to E.M. Cioran, whose *History and Utopia* definitively ruins any Enlightenment idealism.

His venture, concrete[i]land, is a small library located in Makkasan, one of Bangkok's slum villages. Its components are made of mud-dirt-turd, the human matter leaking from the slum on *pilotis* to the ground below in a loop: from the fruit of the earth to its rejection by the digestive belly-village to the open-air sewage that surrounds the *pilotis*... now piling up to the level of the visible, the smellable. The books in this alchemical library are burned and vectorized via the carbon residues of their ashes for an immaterial and psychotic transaction. The readers become sniffers of condensed words and particles in suspension, a kind of cultural methadone... easily accessible, stirring-stifling, barely bearable, immersive-emotional, self-suggested content. To provoke or transgress the situation, after two months of sniffing the first book was read aloud in a robotic secretion session guided by a real-time sensor interface. The reading of the book affected the movement of the robot, agitating the nozzle's trajectory through



NEW-TERRITORIES M4 AND THE UNIVERSITY OF MICHIGAN, CONCRETE[I]LAND, MAKKASAN, THAILAND, 2015. LEFT: DIAGRAM SHOWING TOOLPATHS BEFORE AND AFTER THEY ARE PERTURBED BY THE SOUND OF THE READER'S VOICE. RIGHT: DIAGRAM OUTLINING ROOF SURFACE. ALL IMAGES COURTESY NEW-TERRITORIES.

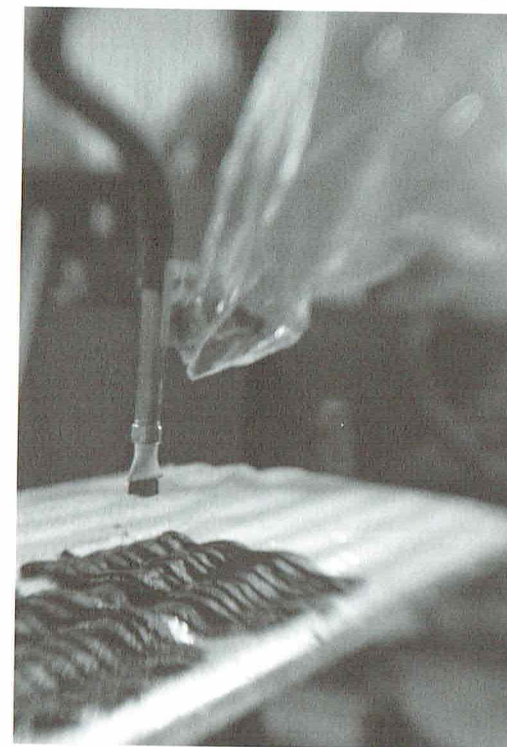


a seismograph sensitized to the amplitude and frequency of the reader's voice. To some degree, the content of the writing became imprisoned in the matter as a whisper haunting the walls, the ground, and the ceiling.

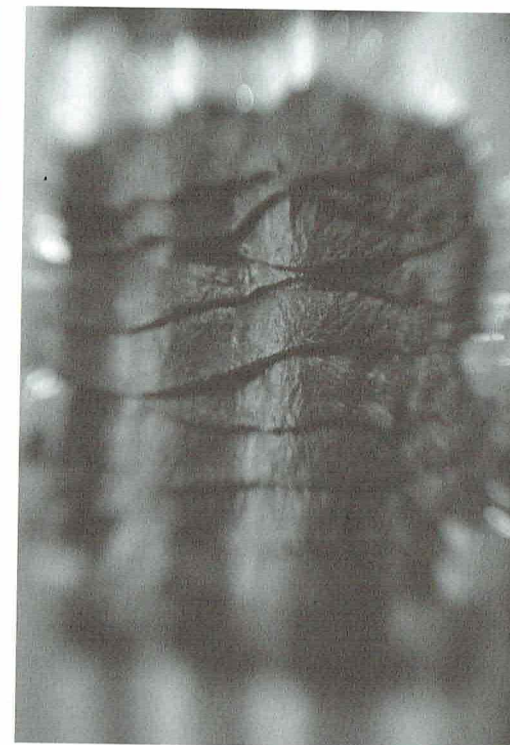
Hypnos, meanwhile, defends the possibility of articulating, negotiating, and eventually transcending Thanatos's antagonism with a holistic vision of relationships over objects, a permanent energy of negotiation, sharing, compensation, and mutualism, where the process of fabrication is politically oriented in order to develop a kind of synesthesia between science and anthropology through a zone of sensitivity (not sentimentality), flirting with science-mysticism in a sort of Wittgensteinian vision of the world's border, where *informe* and informal are consubstantial... in an instrumental-aesthetic strategy.

Her scheme, MMYST, an experimental farm-resort in Krabi, Thailand, is based on a strategy of mutual exchange between two species – humans and swiftlets – where a human shelter and an artificial bird cave are intertwined.

Mutualism between humans and swiftlets is here an exchange of substances and ambiances in a scenario of reciprocal benefit. Swiftlets make their nests from strands of their saliva, a by-product of their diet of living insects, which they

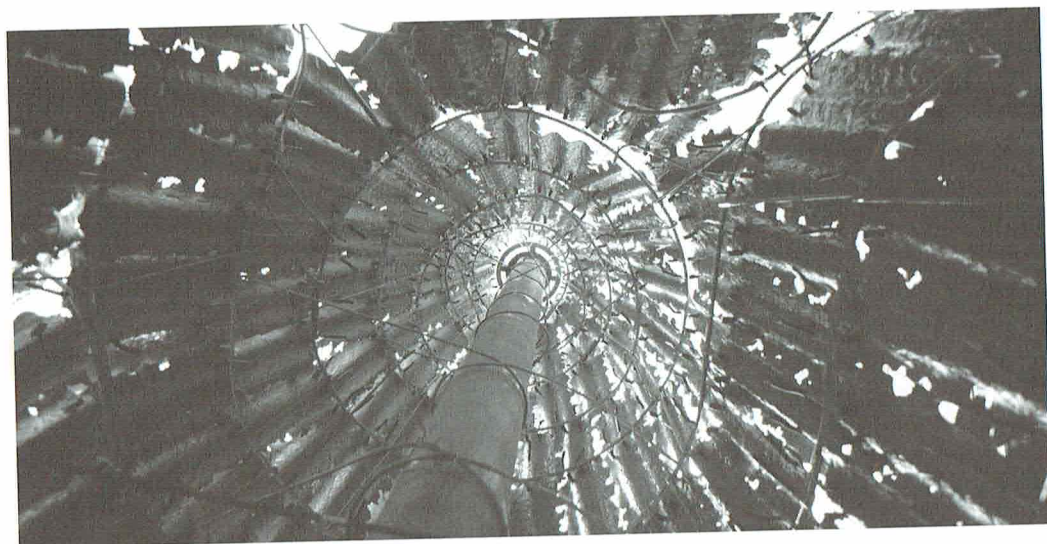


CONCRETE[I]LAND. LEFT: EXTRUSION OF "MUD-DIRT-TURD MIXTURE" ONTO RIDGED FORM. RIGHT: COMPLETED TILE DRYING.



swallow while flying by night over the tropical forest. This saliva hardens when exposed to air. Eating swiftlet's-nest soup is believed to help humans maintain a balanced qi (life energy) and reinforce the immune system. The humans in turn maintain the fragile conditions needed for the the birds' reproduction, controlling their indoor habitats through temperature, humidity, reverb noises, shadows...

This emerging farm is located on an existing black substrate, a petrified lava flow where a robotic extruder builds up a continuum of black, lava-like strands, intertwined and knotty. To introduce stochasticity into its trajectories, the movement of the nozzle is directly perturbed, in real time, by the robot's very noises. The sounds (machine clicks, joint movements, pneumatic pistons) of the predictable programmed work modify in real time the path of the extrusion, a stuttering feedback coming from the intrinsic protocol of doing, increasing the intricate meanderings of the tool in an always-inaccurate positioning loop. Continuing the morphology of the existing habitat, MMYST organizes gradations between several identified structures as a fragile equilibrium between animal, vegetable, and mineral (lava rope morphologies),... a way of territorializing technologies, but in a condition to be defined through indeterminate and unpredictable loopholes.



CONCRETE[I]LAND. ABOVE: INTERIOR.
RIGHT: EXTERIOR.



In the dispute below, these two visions of robotics – as a metaphysical instrument in pursuit of Deleuze and Guattari's "bachelor machines" and as a scientific holistic paradigm – are in conflict. They both appear as subterfuges, thus the hermeneutic of the conflict itself is lost in this endless debate, which lies at the origins of anthropotechnics.

While the projects seem antagonistic, they share the same tooling: a six-axis robot, which becomes the system (systemism) of their antagonism as well as the vector, the proof, and the apparatus articulating the content of their dispute. Finally, the robot seems to be a pretext... an artifact or a catalyst able to open the door of exchange... between their thoughts...

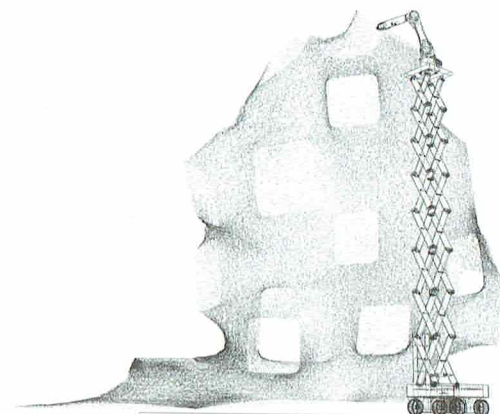
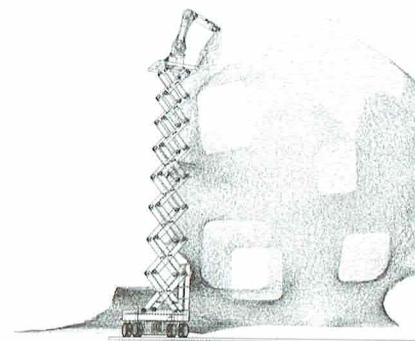
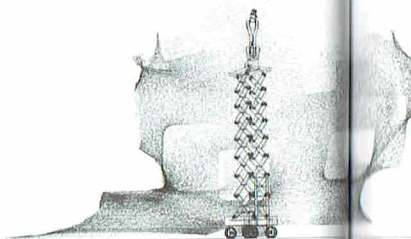
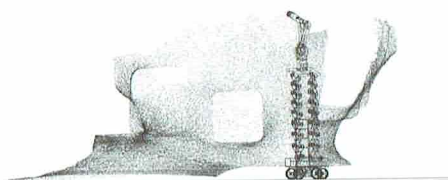
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HYP: In your scenario for concrete[i]land, do you think proposing to sniff books' ashes instead of reading them could be considered serious? Smelling ashes seems like the sort of useless intervention pro bono flag carriers usually do... while you take people hostage of your insane brain...

THAN: The slum needs trespassing, transgression, intellectual polemic... Why should politically correct moralists invade this situation? As a feedback for your own guilt, to wash your small criminal enterprise?... Do you think they need architects and NGOs... to be evangelized and brainwashed?

The mind-machine recipe calls for pataphysical ingredients, where science is used as a vector of narration and production, intertwined, in an indistinct Siamese-twin relationship, with the dependencies between metaphysics and anthropology. Remember that Leibniz never trespassed the description, the analysis, or the decoding of phenomena under the pretense of unveiling the reasons, the origins of those phenomena, considering the border between the explained and the unexplained as subject to being pushed ever further, as displacing instead of erasing itself, and therefore embracing the unexplainable as a necessity, a given. Since the Age of Enlightenment, the belief in science as a religious credo cannot minimize the pathology of human nature nor the ontological debate between Plato and Aristotle... The scientific and industrial barbarity of the 20th century is no longer considered an error of modernity, a perversion of history, but is its cynical and intentional accomplishment.

HYP: Humph!



1. The noosphere is a stage of Earth's evolution that is defined by human creation (both industrial and subjective) and is separated by a rupture from the previous geological epoch, the Holocene.

THAN: Coming back to concrete[i]land... The voice of the reader affects the design process and the mechanical tooling, injecting the dust as a permanent anomaly in the craftsman's gesture, which has been lost by industrialization and reproduction (remember Walter Benjamin) organizing the mas-sification of desires. The system is, in our case, driven by lines of subjectivity and lines of fabrication in an intricate assem- blage. Whispering, reading, sniffing, cheating, shitting, is all part of the "noosphere," dating the origins of human impact on the planet to the initial thought of the mastery of tech- niques and speech...¹

HYP: To call primitivism, atavism, paganism, a religious decline, a strategy of ungrowing, to use technology with a neo- new-age flavor in your ideology of human dejection – where machines are extracting, transforming, reaggregating our stomach's rejects – seems quite inefficient in terms of operative negotiation, dialogue, exchanges, intimacies, and extimacies... I think this is just a pose, a dandy posture to denounce a form of widespread good conscience – and on this I almost agree with you – but it is only intellectual and has no real effect or consequence...

THAN: I receive your critique, but it sounds to me like there is a dishonesty in the way you formulate a kind of dissembled hygienism, in fact masking repulsion for nonennobled matter...

Don't forget Plato's book, and the dialogue between Socrates and Parmenides where the first, as the voice of Plato, disqualifies matter that is not coming from any "essence," such as hairiness, menstrual blood, dust, etc.... But in an eco- sophical time, where we have to reconsider the entire passage, entropy, of substances, whether material or immaterial, objec- tive or subjective, the ones under the carpet have the same

NEW-TERRITORIES M4, MMYST, KRABI, THAILAND, 2015. DIAGRAMS SHOWING CONSTRUCTION SEQUENCE FOR VILLA ENVELOPE, USING SIX-AXIS ROBOTIC EXTRUDER ARM AND MOBILE SCISSOR CRANE.

legitimacy as the ones above it... Following a certain order, they are consubstantial, depending on the traceability of their chemical transformation, with what we cultivate, cook, swal- low, digest, metabolize, shit, decompose, decompost, recycle, as a nutritional loop, where the full cycle is visible. Technologies have replaced the cleaning pigs of the European medieval city... the pig is now a physiological and mechanical machine we have designed and tamed...

HYP: Oh please, don't start quoting Bataille's *Story of the Eye* or any other Eros epigone to test my resistance to repulsion! We cannot always regress to this old addictive antagonism and call for the forbidden as a way of liberation from the norms and rules of an ideal... I agree that the forbidden is a tool to pass through a door, but we must go further than that... Give up your moralistic view of the world!

You know the origins of this dispute, between Aristotle and Plato, between the paradigm of a supreme order only reachable through abstraction, ideas, and mathematics, and on the other hand the sensible, perception as a permanent illusion, as a work of the mind, condemning us to negoti- ate the here and now – always here and now – in a human exchange with matter... Whereas mathematics is an artificial projection, detached from a sensible zone, arrogant and dis- mal. But it's too easy and even false to choose one or the other; they were just tools for thinking... and today, after the 20th century, which simultaneously organized an almost religious ideology of progress and, in parallel, the sophisticated inhu- manity of warfare – both sides of the same coin, justifying needs, inventions, technologies... and guilt.

So you, after a century of scientific hoax, you think about going back to the mud in a medievalist escape... Very well, but to transgress the forbidden is somehow to accept



MMYST. LABORATORY TEST OF
ROBOTIC EXTRUDER ARM USING
STARCH-BASED BIOPLASTIC.

it, it is working within the rule, within the system, it is even expected... and capitalism is waiting for you, nasty little pig... haha! To chew and spit you out in a smoother shape, one which can be sold. What about questioning this abolishing "forbidden" even just for a while? What about reaching the absurd, where there is no such thing as the forbidden...?

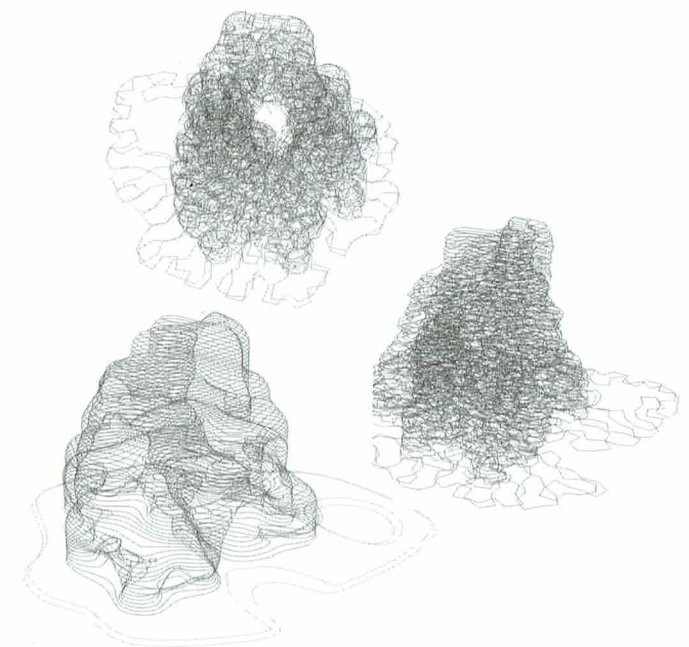
THAN: There's a mathematical shape folding on your argument. Do you remember that Gilles Deleuze's fold was simultaneously topological, linked to the baroque, and psychological, a drift of the fold of the soul, of the fold of Artaud...?

The notion of subjectivity in Félix Guattari's *Schizoanalytic Cartographies*, or *Anti-Oedipus* with Deleuze, was oriented to redefine a new political mapping. The goal was to provoke an articulation between bodies and machines (real, virtual, pata-physical, subjective...), which escapes the system of control, survey, and "overcoding"... far away from navel-gazing performances and popular autocelebrations. Guattari developed a kind of ethic-aesthetics called ecosophy. Lines of subjectivity were a strategy to face the system via a stuttering schizophrenic behavior... to disturb the phenomenon of centering, unification, totalization, integration, hierarchization, and finalization... by and through aesthetics...

HYP: I agree that we are pulled and pushed in contradictory modes of exchange, and perhaps they are consubstantial with the planet's equilibrium/disequilibrium... and no, we cannot romanticize a lost nature, the idealized Holocene, any longer... now that we are condemned to evolve in a so-called Anthropocene epoch, in thermodynamic flux, unstable and improbable, in additive-subtractive mode... Yes, we are definitively shaping the planet with our own substances, physical, physiological, psychological – our psyche has to be counted in the balance. The natures of the Anthropocene are sources of feedback-backlash, of stuttering vibrations, a sort of eco-machinist-masochism, in the double paradox of Labov, observed and observing, object and subject, actor and spectator, vector of this mise en abyme.

But all this is again and again about contradictions. I prefer misunderstandings or even compromises. Misunderstanding is the condition of an exchange, not a contradiction. I would disagree with the idea of choice – in fact, I think about a sort of permanent mode of compromise, of approximate exchanges and transitory transactions of matter between species, but also between machines, contingencies of codependencies.

MMYST. DIAGRAM SHOWING PRO-
JECTED IMPACT OF MACHINE NOISE
ON TOOLPATHS FOR ROBOTIC
EXTRUDER.

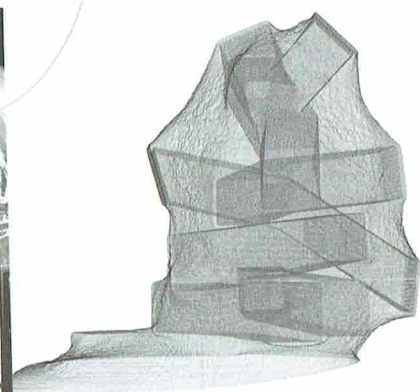


It's in fact enlightening to look at where the word *fabrication* comes from, to remember that it contains the idea of a fake – etymologically: made by or resulting from art, artificial, from the Latin *facticius/factitius*, "artificial," and from *factus*, "elaborate, artistic," past participle adjective from *facere*, "to make, do; perform; bring about; endure, suffer; behave; suit, be of service" – thus the idea of an artifice ... So what do we make of fabricated things? Are they mere illusions?

I do not think in terms of objects but in terms of relations, of trajectories, of embedded intentions... in fact, there are no such things as objects, it's a well-known factitious fact.

Does this mean that the way we project physical reality as a reality is suspicious? An illusion of values? In this case fabrication could be assimilated to a Decameron strategy, stretching time to feed our need for illusion and embedding emotions, feelings, intentions, desires, drives... Physical objects do have a mood...! We just have to reveal their DNA; shape and form have a psychology, as Gaston Bachelard told us. There's no need to overcode their existence with overpoetic metaphor: "Do not change anything, so that everything is different," Jean-Luc Godard said, inviting us to extract intrinsic transformations from the entropy of a system itself.

THAN: You confuse workerism and speculative materialism... Using a robot is not the clue, but a vector of disalienation, of de-positivism... to complete a transaction between



2. "Design is the creation of a project with a view to the realization and production of an object (product, space, service) or system, at the crossroads of art, technology and society."

technologies and anthropologies, atavism, machinism, and vitalism... from inside the main discourse, from inside the expertise, which excludes and discriminates in order to create ivory-tower positions.

Design should be reevaluated as the opposite of its English definition, which lost its validity over the last 20 years to become exclusively determined by performance and rule: "Design is the creation of a plan or convention for the construction of an object or a system," says the English *Wikipedia*. The French definition includes the notion of *dessin/dessein* – intentions and means, *gestalt* and *Gestaltung*: "Le design est la création d'un projet en vue de la réalisation et de la production d'un objet (produit, espace, service) ou d'un système, qui se situe à la croisée de l'art, de la technique et de la société," says the French *Wikipedia*² – in the maieutic of process and discovery.

HYP: Your belief in placing being at the origin of the existence of all phenomena, where perception and logic are incestuously consubstantial, seems to be a gift to Pathos, submerged by your emotional addiction.

THAN: With your supposed or pretended holistic virtue, driven by a kind of scientific neo-Rousseauism, could you explain the difference between your discourse and fashionable greenwashing?... And what is a robot doing in this story of fabrication, of factitiousness? In terms of attitude and meaning in a transforming climate, how could you renegotiate the substance, whether material or immaterial, objective or subjective, sweet or repulsive, to face the filthy, grimy, grubby, mucky, drossy condition of our mind?

It's very easy, quite comfortable, to stay at a level of hygienizing meanings and means for an ideological yearning for progress, paternalizing human nature in deaf-mute-blind behavior. For instance, "fighting climate paranoia" implies escaping from the established posthygienist discourse, greenish simulacrum, or technofetishist ingenuity... disqualifying the propaganda of the neo-petit bourgeois franchise, refusing the chic, the smart, the fair, the fake immaculate vintage life decor, Pierre Bourdieu's *habitus* for the technoid Teletubby world... whose consumerist lifestyle pollutes more than ever... At the opposite of this weak, immaculate immaturity, this incubated neoteny, nature's life-death cycle produces nitrogen, smells, stinks... the conditions of its recurring rebirth.



MMYST. RENDERING OF PROJECT EXTERIOR, SITED ON LAVA SLAB. OPPOSITE: DIAGRAM SHOWING HABITABLE SPACES FOR SWIFTLETS AND HUMANS.

HYP: MMYST integrates the feedback of its own running process to increase its degree of complexity and uncertainty. This Heisenberg strategy uses the noises of the device to disturb the vector on its own stuttering tool path via a real-time sensor interface, creating an open loop of variation where the nozzle's position is defined by a conditional location... where the nozzle is never where it is supposed to be, moving to a should-be position it will never reach, sensitive to new packets of iterative information being sent, a loop of permanent reorientation. It affects the movement, the speed, and the trajectory of the machine... This indeterminacy, coming from a nonlinear input, develops the artifact by itself, the heuristic emerging shape, which uses the digital as a zone of passage able to generate conflict.

We don't abuse metaphor in a ridiculous anthropomorphology like you do, but we make uncertainty a strategy of knowledge... from the logic of the system itself. Our indeterminacy is a process of legitimation, of research, the opposite of yours, which is managed by storytelling, by an exogenous

material of suppression and interpretation, of semiology, determined by the linguistics of poststructuralism and spread as "French Theory."

You are trapped in a post-Houellebecq speculative fiction, sad as a Radiohead song, a postpunk disillusionment in a *Neuromancer* biotoxicity, using robotics and technology in a black, dystopian, puerile vision...

We are instead defining science as a corpus of induction-deduction, empiricism and explanation, dealing with the necessity of contingencies – to quote Meillassoux and his notion of (un)finitude – where the philosophy of the human being cannot deny the scientific preexisting cartographies.

THAN: Is it a crime to be disenchanted, and to develop an aesthetic of this distress, with and within the technologies normally used to wash our souls and treat our minds' affliction? We are perhaps on the same platform: we use the same robot, the same software, the same sensors... you via scientism and me, anthropotechnicism... Several angels could be dancing on one pin's head... but don't be fooled by apparent similarity. How can we confuse one monochrome with another, just because they seem similar? Are you sure Malevich could be mistaken for Rauschenberg erasing a de Kooning drawing?

FRANÇOIS ROCHE AND CAMILLE LACADÉE ARE COFOUNDERS OF M4 (MINDMACHINEMAKINGMYTHS), A BRANCH OF NEW-TERRITORIES CURRENTLY BASED IN BANGKOK.

Greg Lynn
& Chuck Hoberman

Editor's note: This conversation is excerpted from Chuck Hoberman, Expanding Sphere/Iris Dome, edited by Greg Lynn and released in 2014 by the Canadian Centre for Architecture as part of its Archaeology of the Digital series. The complete interview, including videos and additional images, can be found at www.cca.qc.ca/epub.

Transforming Geometries

Chuck Hoberman's work focuses on the notion of transformable design: objects, structures, and spaces that can change size and shape through the respective movements of their parts. The Expanding Sphere and Iris Dome could be considered as prototypes with multiple potential uses – from toys to buildings. The development of controlling surfaces defined by geometric transformation, with zero material thickness, has been combined with the rigorous design and engineering of hinged and folding mechanisms capable of expanding and contracting without colliding with neighboring components.

Hoberman's initial inspiration came from simple scissor-like structures such as elevator doors and the retractable telescopic arm of a shaving mirror. His objective was to imagine systems where changes in form and size would occur in three dimensions rather than on a single plane. The use of computers – in particular, customized commands for CAD drawings, or AutoLISP, which Hoberman coded himself – was crucial for solving the complex mathematical and geometrical calculations necessary to control the design and engineering of each component of the structure, later built as operational prototypes in collaboration with Bill Record. These projects have led to a series of industrial patents that Hoberman began to register in 1986.

The geometric and robotic ambitions of Hoberman's Transforming Sphere are self-evident. What is less apparent is the role that digital technology played in the engineering and invention of the patented mechanisms, movements, and spaces. Hoberman drafted the principles of transforming geometric motion and then wrote custom AutoLISP scripts to test the collisions and intersections that would define the material thickness, profile, and mechanism of these robotic structures. The mechanisms were then manufactured at small scales using early 3-D printing technology and at larger scales using CNC router tables and lathes. Large-scale mechanical connections were made not by tooling or casting but by cutting solid aluminum billets into custom shapes and profiles. The Transforming Sphere changes size, whereas the Iris Dome has a variable oculus-like opening at its center. While mechanisms