Cyberspace/ Modernist Space

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This paper explores the uncanny similarities between the revolutionary fervor of the Futurists at the turn of the Century and the conditions implicated today by the increasing emergence of technology; especially the internet and cyberspace. The effect can be characterized, with the help of Deleuze and Guattari, as a loss of metaphysical solidity of objects and the subsequent fragmentation of identity. In such a milieu, pressures to increase production efficiency, with the advancement of technology as a catalyst, tends to limit the potential for expression and release of desire.

Duchamp and the Surrealists advocated irrationality and the production of non-meaning as a method of resisting these socio-economic pressures of conformity and repression. Thus, we see that technology can have a liberative potential, but only if it is disassociated from rigid functionality.

From this theoretical foundation, a project, entitled "GOOEY Architecture" is introduced as an example of a technologically enhanced environment which eschews rigid cause and effect experience and revels in qualities of play, irrational motives and delight.

THE FUTURIST SUBJECT

We are finally, at the end of this Century, faced with technological advances of sufficient magnitude to offer us an opportunity to profoundly re-evaluate established notions of spatial experience. With the advent of the virtual, mass connectivity and interactivity, many hail the potential of these new technologies as harbingers of a new consciousness.

Yet, in the same manner as Shakespeare, who stretched, transformed and ultimately locked us into the norms of modern English. the effects of human immersion in technology was somehow inexorably laid out for us to ponder and bring to fruition from the turn of the 20th Century. To this day, we cannot shake off the original discoveries of the Futurists and despite the fact that we are now entering into the "next" technological era, we still have not digested many of the discoveries and theoretical foundations which were unearthed over 75 years ago.

In a group statement entitled "Futurist Painting: Technical Manifesto" of 1910, Boccioni, Carra, Russolo, Balla and Severini stated:

> Our bodies penetrate the sofas upon which we sit, and the sofas penetrate our bodies. The motor bus rushes into the houses which it passes, and in their turn, the houses throw themselves upon the motor bus and are blended with it.'

This melding of a body and sofa, bus and house, implicates a breakdown of the rigid boundaries separating things from other things. We see that there is no longer something definite which can be assigned a clear identity in a fixed location with solid boundaries.

The Futurists waged war on the sanctity of the object. Take the example of Boccioni's painting Elasticity. Herein, one detects a

Fig. 1. Elasticity, Umberto Boccioni, Oil on Canvas, 1912.

landscape, an urban center in the distance and a farmer occupying the centerground. What is of interest is that despite the seemingly fixed quality of the content of the picture (this is a landscape), one is presented with a completely dynamic composition of swirling ground plains, composition lines and color fields. No single figure or element is rendered as complete, instead, each area of intensity of the painting is made up of a dynamic interplay, a multiplicity of elements which drift in and out of definition. Each partial figure independently follows its own fragmented trajectory. In the artists' words, the effect was to capture the "simultaneousness of the ambient, and, therefore, the dislocation and dismemberment of objects and the scattering and fusion of details which are freed from accepted logic..."

This is a far more thorough revolution than a mere altering of the field of perception. This was an entirely new definition of a complete ecosystem, which Sanford Kwinter points out as being a new merging of "mechanical and biological spheres" into a single plane. This meant that no object, body, or concept, could be removed from the infinitely complex web of interconnected forces in the environment; all spheres of activity are interconnected because they were all resultants of vectors of energy, bits of matter and its movement and collisions over time. This breakdown of the sanctity of the object

was instigated by the onslaught of technological development; mass production began to make uniqueness obsolete (see Benjamin's *Work of Art in the Age of Mechanical Reproduction*) and the speed of the motorcar and airplane blurred the clarity of visual and temporal perception.

The recurring question under consideration concerns acondition which technology seems to universally impose, namely, the nearly complete erosion of the subject. This is not something that should necessarily be feared, rather, it is a condition that should provide a renewed sense of clarity and connection with the environment. But society at the beginning of the century was resistant to such radical redefinition, as we remain today.

THE DIGITAL SUBJECT

Marcos Novak, in 1992, laid out a metaphysics of the virtual in his seminal essay "Liquid Architectures in Cyberspace." In that essay, Novak hypothesizes a condition in "cyberspace" wherein "objects" or "bodies" or sites/locations are provisional and fluid because the reality of virtual reality is essentially constituted of data streams, algorithms and bytes. The definition of attributes and the usually understood laws of physics in cyberspace and virtual reality become moot. By combining bits of data, identity can be morphed since boundaries between iterations are not in any way concrete, but just the result of coding shifts. This is made true by the fact that in cyberspace, everything is fundamentally of the-same stuff. This condition of undifferentiated flows of matter parallels the condition which Futurist metaphysics postulate.

Ironically, the theoretical remnants of early Modernist explorations seem to linger and remain true in regard to current conditions. The discovery of similar effects which technology has wrought, at different historic moments, intensifies our search for the need to reformulate our worldview. Witness the words of Peter Eisenman who echoes the refrain as he states that "Architecture can no longer be bound by the static conditions of space and place, here and there. In a mediated world, there are no longer places in the sense that we once knew them."'

This hype is certainly reminiscent of Futurist optimism. Writing in 1908 Marinetti joyfully decried that "All things move, all things run all things are rapidly changing."' So, if we are supposedly confronted with the inescapable need to re-evaluate our world view because of the rapid rise of technological advances, one asks, are we experiencing déjà vu'?

There are two possible answers to this: the first is that, yes, we should now readjust our sights to an entirely new notion of the technological, or secondly, perhaps we had never really adjusted ourselves to a technologically charged society in the first place. Somehow, I suspect the latter. Perhaps we are, just as we were 80 pears ago. merely at technology's doorstep, barely over the threshold.

We have not made much headway in coming to grips with these issues. We do have history to guide us though, and it is clear that a technological basis for artistic and social change is a dangerous path to follow. The potential for aspects of economic and humanistic liberation does seem to beckon frequently, although perhaps not as often as nightmare and horror: it was only upon the ashes of the War that the domineering and deadly aspects of technological transformation became apparent. Boccioni, Marrinetti, S'Ant Ellia and most of the other leading futurists died on the battlefield.

Historical and current ideological concerns aside, this paper is attempting to create a direct metaphysical correlation between the rise of technology and the loss of specific subjective boundaries and identities of the individual throughout the 20th Century. Perhaps it was necessary for over 50 years to pass before the full theoretical implications of these discoveries could be translated into a more precise philosophic terms. For me, this discourse remained dormant until the work of Deleuze and Guattari (D&G) in the late 1950s. The schema they put forth is incredibly rich and above all extremely

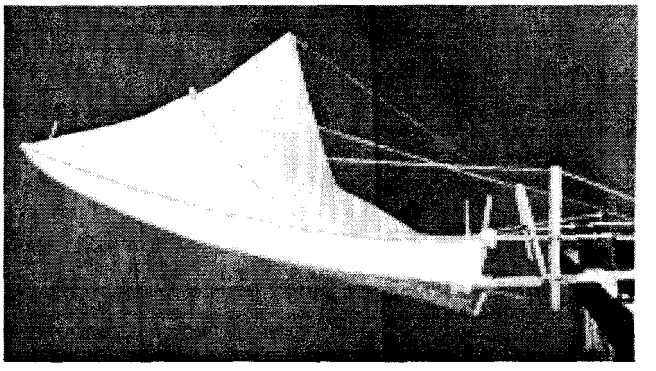

Fig. 2. "GOOEY Architecture," installation photo

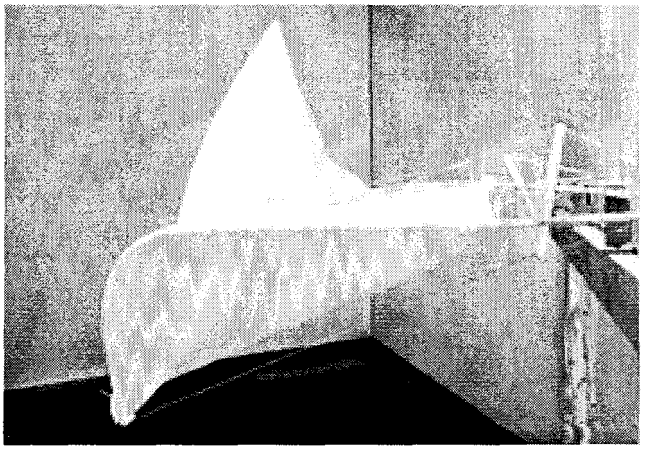

Fig. 3. "GOOEY Architecture," installation photo

practical, especially in the conceptual and historical development of our relationship to technology. In *Allti-Oedipus, Capitalism and Schizophrenia* they attempted to eradicate the structured notion of the Freudian self by positing an almost Duchampian system of (anti)meaning. For D&G the object does not even exist, no less represent an artifact of cultural identity.

To my knowledge, D&G never credited the Futurists for laying this groundwork. Yet, for D&G, as for Boccioni, the object does not exist. there are only flows between machines and production, the isolation of the figure exists only in rarified, and "schizophrenic" conditions. Interestingly. but in a broader sense, D&G emphatically state that "everything is a machine." There are many sorts of machines; "producing machines," "desiring machines," "anus machines." "bicycle horn machines" and between them, there is a continuous flow. From machine to machine they form infinitely complex webs of production. Every machine is a machine connected to another machine. There is no need to distinguish between producingand production, it is all part of thecontinuurn of flow, desire, energy and production. Posited here is a world based upon infinite and unmappable flows coursing through open-ended multiplicities.

The rubric "machine," as described above, is not to be taken literally in its normally understood definition of a man-made mechanism in service of production, although this aspect will be taken up shortly. Rather, for Deleuze and Guattari, the metaphor of the machine is meant as a critique of the Freudian conception of the individual: compartmentalized and succinct. Yet, this statically structured self seems to become unintelligible when placed within the vastly shifting realm of a technologically charged society. This is because most technological apparatus are generally conceived as extensions, modifications or enhancements of the body or senses, as such, they tend to violate sacrosanct boundaries which define realms of interiority and exteriority.

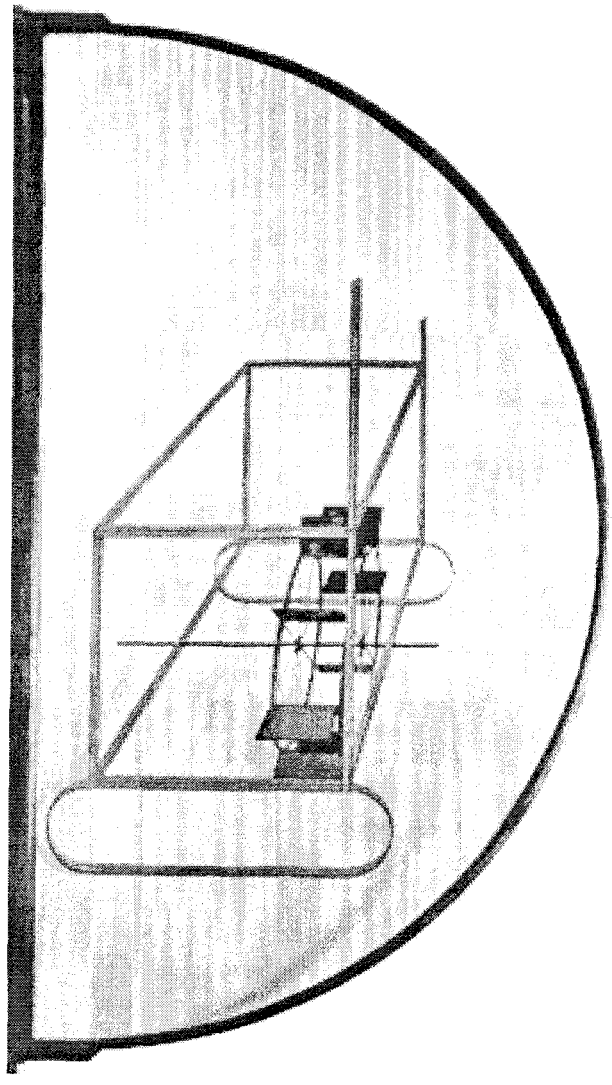

Fig. 4. Marcell Duchamp, "Water Mill Within Glider Glass," 1913-1915.

D&G recognize this tendency of technology to invade the body, and instead of trying to create a fictional identity for modern man, they push the ramifications of the loss of the subject to its extremity. It is not that man is literally a machine, but rather, each function of the body, or each organ, sense and function is involved in vast complexes of production and consumption. To isolate any single aspect over another, be it natural, artificial, human or otherwise, would be, in D&G's terminology, schizophrenic. But the idea of the machine is effective in removing lingering sentimentality regarding the simplicity of a Cartesian condition where the mind commands a comfortable authority above and removed from the outside world.

EMBRACING THE IRRATIONAL

The danger here is obvious. If we no longer have a complete conception of the self to resist the forces of production and capital, how can we avoid losing our ability to express difference within the face of global production?

In the classic model of capitalist society, machines have been devised in order to produce goods which in turn are distributed and consumed for profit. It is becoming apparent that the spread of global capitalism has increasingly created a condition of hegemony in terms of the marketplace and culture. Georges Bataille posits in his writings on "Heterology," a scenario whereby society, through economic and political control, maintains itself by encouraging a condition of homogeneity. Once something falls beyond the boundary of consumption and production it occupies the realm of the heterogeneous. It is then counterproductive, uncontrollable and ultimately a threat politically since the heterogeneous cannot be assimilated.

In Chaplin's "Modern Times," for example, the Tramp is unable to integrate into the smooth homogeneity of the regime of the workforce. The results for the factory are disastrous but also too for the hapless assembly line worker. It is therefore precisely for diversity of all things human, that Bataille advocates a strategy to encourage heterogeneity, not primarily as a form of political activism, but rather as a means of preserving the richness of humanity. As he describes it in an essay entitled "The Use Value of D.A.F. de Sade":

> ...the heterogenous world includes everything resulting from unproductive expenditure. This consists of everything rejected by the homogeneous society as waste... Included are the waste products of the human body and certain analogous matter (trash, vermin, et.); the parts of the body; persons, words, or acts having a suggestive erotic value; the various unconscious processes such as dreams or neuroses; the numerous elements or social forms that homogeneous society is powerless to assimilate... The goal of [homogeneous society] is always the deprivation of our universe's sources of excitation and the development of a servile human species, fit only for the fabrication, rational consumption and conservation of products."

Actually, as Bataille spells out, it is the constant force of repression, (Freud's superego), which is the social economies' controlling mechanism to assure that its resources are spent efficiently. Because the pressures of conformity and hegemony are strong and repressive, strategies which advocate irrational processes, by the Surrealists and especially Duchamp for example, provide an effective method of resistance and a model for heterogeneous intervention.

If we take this methodology as the opposing edge of the sword of productive technology, we can understand that irrationality and non-linear causality can allow for the expression of irrational or inverted machines whoís aims are to produce anti-meaning. In so doing, all disparate energies, including those which are "non-productive," creative or even deviant, those which a given society inevitably produces but attempts to repress, can be allowed to dissipate in a myriad of directions as it pleases. (These heterogeneous tendencies can never be eliminated by any society, instead, such energy always resurfaces as neurosis or violence).

The schema of the unbounded, technologized subject being traced here, has the theoretical potential to avoid unnecessarily rigid control and repression and thus leads towards the possibility of connecting us to the vast array of human, natural and technological ecosystems without the need for unhealthy repression. Even more importantly, by embracing the possibility of creative play and irrational desire, it shows us that production does not necessarily require capitulation.

INTELLIGENT ARCHITECTURE? GOOEY ARCHITECTURE!

So.

One naturally wonders what this means for architecture today? When contemplating the ramifications of an increasingly digital/machine oriented culture of construction, one naturally begins to speculate about what the technology of "intelligent" architecture may offer us. Certainly there have been significant advances related to the use of computer in building systems. Almost every aspect, including humidity, temperature, daylight control, transportation, security systems, are all variables which are monitored and regulated to maximum efficiency by computerization. Such advances are

advantageous in terms of energy efficiency and the maintenance of an acceptable architectonic ecosystem. It is simple to comprehend how this sort of regulation can be revolutionary in terms of building management. But does this really entail any radicalization in regard to the actual architectonic experience? We all expect that a building we use will be comfortable and function on a minimum level, a·e also should expect that this should be accomplished efficiently, but this implicates, at best, only the most marginal transformation of our understanding of space. This sort of "Intelligent Architecture" is primarily in the domain of the engineer or perhaps more precisely, the "maintenance engineer." In fact, these systems remain primarily invisible to the user, save the notable exception of the automatic flush function of the motion-detecting urinal and lavatory faucet. (Certainly the spatial explorations of Gehry's Bilbao project among others would be unimaginable without computer visualization and fabrication, yet, the experience of such space does not bring into play any active digital traces or elements).

A truly intelligent architecture could be one that dynamically responds to the shifting presence and composition of users within a space. A truly interactive architecture would be one that canchange configuration fluidly to accommodate evolving site specific conditions. We can begin to conceptualize an architecture which is truly radical and revolutionary, an architecture which responds to the sort of redefinition of social expectations brought on by the rise of digital technology and digital consciousness. It would be an architecture which is integrally connected with the theoretical paradigm which has been outlined above.

Through a series of installations culminating in a project entitled "GOOEY Architecture," I have been exploring the boundaries between the virtual and the real; melding these realms together into physically constructed augmented environments.

GOOEY Architecture is an exploration of the boundaries between architecture, virtual reality, sculpture and installation art. It is an environment that responds to the presence and activities of its participants. Movements are sensed by a series of sonar motion detectors that register speedanddensity of people wandering throughout the installation. Computers translate the activities of the occupants to a variety of mechanical devices that control flexible panels which make up the enclosure of the installation.

The walls of the installation consist primarily of 5 mm. extruded honeycombed polyethylene panels. This material is commonly used in the construction industry for prefabricated building panels since it is lightweight, rigid when bonded with finish panels, and a good insulator. It is also commonly used by the marine industry to construct boat hulls since it can be easily molded into curves and seamlessly shaped. Both of these applications apply rigid material to the outside faces of the sheets which come manufactured with a fibrous roving. In creating "GOOEY Architecture" however, we maintain the truly unique quality of the material by covering the panels with a weather protective, yet flexible silicone membrane. This allows the panels to retain their flexibility. These sheets have structural integrity, yetremain fully flexiblein threedimensions. Such acomposite panel allows us to fabricate walls which are malleable, yet have a high impact strength and good acoustic properties. The polyethylene sheets are fully bendable, do not crease and maintain their shape. Once we appropriated this wall material it became possible to conceive a truly fluid concrete architectural space.

The structure for the panels are essentially simple trusses. In the prototype. we use flexible fiberglass rods as compression struts and nylon chord as tensile members. Yet, the system serves not only as structural members, but by attaching motors to the tensile members, the camber of the fiberglass rods can be manipulated and controlled. Thus, in addition to their structural usage, the trusses perform the task of actually controlling the deformation of the walls. We have employed very the traditional architectural elements of a wall and truss system. Yet, by using a fully flexible membrane material and a truss system which functions as a motion actuator, we are able to push standard construction into the realm of a truly revolutionary architecture.

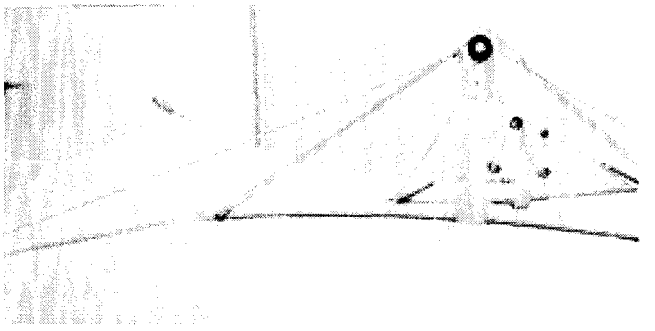

Fig. 5. "GOOEY Architecture," detail of truss mechanism

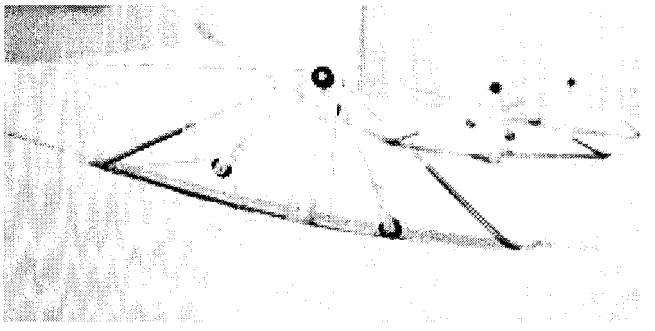

Fig. 6. "GOOEY Architecture,"detail of truss mechanism.

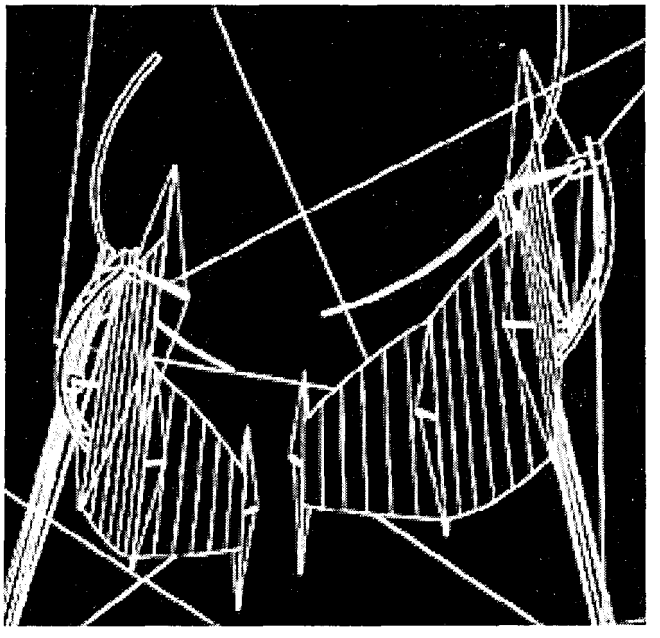

Fig. 7. "GOOEY ,Architecture."drawing by Eugene Floteron

The movements of the enclosure are controlled by computers and microprocessors. The programming used to control the systems is based upon "fuzzy logic" which allows for a fluid set of command structures. Sometimes known as "soft computing." this paradigm is tolerant of uncertainty and partial truth. The guiding principle of soft computing is to exploit the tolerance for imprecision in order to achieve a complex and fluid environment.

Experience has made us accustomed to the consistency and predictability of traditional architectural space. In "GOOEY Archi-

tecture," however, expectation is never completely fulfilled. There is no fixed point of reference from which we can determine our own locations, rational paths of movement, or clearly defined spatial boundaries. Instead, theenvironment is anevolving dynamic related to the group of its participants mediated by chance operations of various computer controlled cadences. On a literal level. the installation eschews solid objectification by consisting of a fully malleable enclosure. As individuals or groups of people explore the installation, responses to movements will elicit completely unexpected results. As individuals or groups of people explore the installation, responses to movements are not predictable because of the computer mediation which "mixes" the data to create a rich and continuously unfolding environment.

This environment is conceived as a direct response the understanding stated above: that technology has the tendency to wear down the boundaries of the individual. For example, it is natural for participants to attempt to "find themselves" within the room, but, they will never be precisely able to determine their personal presence from the other "subjects" interacting with the space since the traces of the individual are blended with that of the group. The sum is a collective expression and GOOEY Architecture consciously explores the complicated fabric created by groups moving in space. While inside the installation, an individual's actions, although clearly potent, may not have linear causality. The experience is uncanny and exultant in the irrational.

GOOEY is an interactive architecture meant to blurr the distinctions between the virtual and theconcrete. A goal for further research is to register a user's presence using a 3-dimensional model and VRML to navigate and actuate the installation through the web. The goal is to be fully immersive. Fully immersive, for us, is not total virtuality, but rather a condition which is concrete and fully incorporates the realm of the digital. Such a space creates a smooth integration between the virtual and the real. In so doing, the virtual can be concretized.

CREDITS

GOOEY Architecture, assisting credits: Shandor Motion Systems, Robert Hirsch, mechatronics, Eugene Floteron, architectural and fabrication assistance

NOTES

[1] F.T. Marinetti, "Futurist Painting: Technical Manifesto," 11 April 19. *Theories of Modern Arr,* Herschel *B.* Chip. editor (University of California Press, 1968).

[2] Peter Eisenman, *Blast Magazine*, <http://www.artnetweb.com/projects/blast/> Jordan Crandall, editor.

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