Beyond Space?

Exploring the Temporality of Architecture

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Abstract

The consideration of time and its significance in architecture implies a challenge to architecture's traditional concern with permanence, stability, and space. This thesis offers a speculation on an alternative to the assumptions of architecture's theoretical grounding in spatial discourse as a category of objective knowledge. Instead, a theory of temporality is proposed as the intersection of various contingent factors which fragments the notion of space. This concept of the temporality of architecture is conceptualized through three parallel investigations into nature of relationships existing between time, space, and the body of the subject. The design project explores this potential through redevelopment of Ottawa's National Arts Centre.

If this concern with temporality leads us away from the traditional notion of architecture-as-object and toward a greater concern with the experiential moment, how might this reshape our definition of the notion of architectural space and its greater role in contemporary society?

Beyond Space?

Preface

Is there an architecture that is materially *liquid*, that configures and is attentive not to stability but to change and is thus at one with the fluid and shifting nature of all reality? Is it possible to think an architecture that is more of time than of space? An architecture whose objective would be not the ordering of dimensional extension but movement and duration?

-Ignasi de Solà-Morales, *Liquid Architecture*¹

In the discourse on architecture, has too much emphasis been placed on the purely spatial aspect of architecture at the expense of other possible understandings? What limitations of this spatial discourse might we overcome by placing emphasis instead on issues of time rather than of space? Can this shift in our thinking about architecture influence a change in the role of the profession in relation to society as a whole? Does changing the cultural emphasis we place on concepts of space and time ultimately produce different architectural experiences?

The idea of space has, especially in modern thought, been assumed to be an aspect of objective knowledge, possibly due in part to the ease of recording architecture's spatial aspects through traditional representation techniques. We find that this concept of space is abstract, a concept which is made fully present only to reason, and does not correspond to our everyday experience of what we might call architectural space. This attitude

towards architectural production refers to the idea of space as a Platonic concept, a pure, unchanging ideal.

If we are to move beyond the limitations of this abstract notion of space, which places emphasis on notions of permanence and conceptual stability, we may be compelled to consider the notion of temporality in architecture. This shift in emphasis from architecture's reliance on space to its grounding in temporally based phenomena erodes the understanding of architecture as a singular, stable object. In considering these notions, we can think of architectural experience as an event or moment which includes all of architecture's contingent and fleeting qualities. Because of its transient nature, the architectural moment does not construct a permanent edifice of meaning; rather, it is a condition which requires the presence of an individual and arises out of their interaction with the built environment.

Historically, the creation of architecture has been less concerned with the social effect of architecture, and more interested in the represented meaning of a particular architecture. We see that in contemporary architectural discourse the creative act of architecture has become distanced from the architecture's productive social capacity. In order to close this distance, we must resist a retreat into idealism by focusing on the fluid and rhythmic aspects of architectural experience; The goal being to ground architectural discourse in

social and physical reality. Through this shift in emphasis architecture can more productively engage with the complex variety of forces which it encounters daily.

¹ Solà-Morales, Ignasi de, "Liquid Architecture.", Davidson, Cynthia C. *Anyhow*. New York: Anyone, 1998. p. 36.

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The Multiplicity of Time

Introduction

“...there is also, as more characteristic of and specific to [Nietzsche's] thought, a radical 'unmasking of unmasking' according to which even the idea of a truth that reveals a masking, of the attempt and claim to reach a solid 'ground' beyond ideologies and every form of false consciousness, is, precisely, still a 'human, all too human' devotion, still a mask.”¹

-Gianni Vattimo, *Metaphysics, Violence, Secularization*

The aim of the present work is to provide a speculation on an alternative to the fundamental assumptions of architecture's theoretical grounding in the discourse on space. In modernist architecture for example, architecture's spatial aspects became the assumption of objective knowledge. Through the exploration of temporality as a condition arising at the intersection of cosmic, terrestrial, and individual rhythms, a conceptual shift is implied which moves away from architecture's traditional concern with permanence, stability, and space, towards a concern with temporality as rhythmic, fleeting and unpredictable. This exploration is undertaken in order to ground architecture in its engagement with the dynamics of the real world, rather than an autonomous conceptual realm.

The contemporary state of architecture can be said to be defined by having to deal with the impossibility of establishing a universal system of values, related to the crisis of philosophy as identified by Friederich Nietzsche. This crisis of philosophy was fully

established in Nietzsche's *death of God* pronouncement; where that which had once defined a universal set of cultural beliefs and a unified approach to life no longer applies in the age of rationalism and science.² The disappearance of any absolute reference point that can in some way close a system of knowledge and values, as exemplified by Classicism, and the subsequent search, in vain, for a new universal vision of the world, as exemplified by the Modernist paradigm. The Italian philosopher and politician Gianni Vattimo has argued that Nietzsche has shown the impossibility of "an absolute philosophical foundation that could produce an absolute principle," and thus philosophy must not reduce everything to foundational metaphysical certainties,³ an ontological stance which Vattimo termed *weak thought*. This stance requires that the foundation of modern thought, with an emphasis on certainty and objective truth, be replaced with a more pluralistic conception of truth closer to that of the arts, in which, according to Vattimo's interpretation of Martin Heidegger's weak ontology, "The occurrence of Being is rather...an unnoticed and marginal background event."⁴

In a situation where there is no universally accepted system of principles from which to construct a totalizing view of the world, the contemporary construction of reality can be said to be produced from heterogeneous experiences rather than a central reference point. Borrowing from Vattimo's theory of weak thought, the Spanish architectural theorist Ignasi de Solà-Morales, in his formulation of the concept of *weak architecture*, states that

the experience of architecture is equally weak and fragmented and therefore the contemporary experience of architecture can no longer be conceptualized in the linear form of a universalized set of values.⁵ The crisis of architecture can be said to be defined by the demand of “grounding without a ground,” in which “architectonic experience can no longer be founded on the basis of a system.”⁶ This is unlike the illusion of a new system of absolute values which the pioneers of Modern Architecture sought to establish. Rather, architects are confronted with the challenge to *build in the void*, in which the principles of design are not established on the basis of an immovable reference, but under the obligation to assume that every step of architecture’s theoretical grounding is a subject for scrutiny.

Central to the form of architecture which Solà-Morales advocates is a notion of the diversity of time, which provides diverse and complex experiences linked to the complexity of contemporary society itself. If the reading of reality is something that must be built as a process originating from the individual as suggested by Vattimo’s weak thought, then time is presented as a system that is constructed from fragments, juxtapositions, and superimpositions, which can no longer sustain illusions of continuity. Rather, we might say that there are various times from which our experience of reality is produced. This diversity transforms our experience of architectural experience from a singular object into an event which complicates traditional distinctions between subject and object.

The contemporary experience of time contrasts a closed system in that it is presented as pure heterogeneity, juxtaposition, and discontinuity. This experiential time can no longer maintain historical illusions of continuity or linearity. It cannot be said that there is a single unifying time from which we derive a universal perception of reality, there are instead multiple ways to experience time from which it is possible to construct experience. Temporality is manifested in architecture as the source of contingent phenomena that introduce plasticity and unpredictability into spatial experience.

Notions such as these are not compatible with the space and time of traditional conceptualizations, but are only thinkable in the realm of internal experience, sharply contrasting traditional architectural notions arising from the stability and permanence of Platonic idealism. A weak construction of architecture, similar to Vattimo's weak thought, offers a multiplicity of positions from which to project a provisional, weak, construction of reality in which perception is fragmented rather than structuring. From the position of Solà-Morales, a weak architecture can only exercise influence tangentially as an aesthetic experience, rather than presenting the total apprehension of reality of a universal ideological system.⁷

In the following sections, a temporally based architecture is conceptualized through three parallel investigations into the nature of relationships existing between time, space, and the body of the subject which form the main portion of the research based section of this work.

The first section inquires into the nature of time as conceived of as a continuity, and in rhythmic processes of continual transformation which form the foundation of concepts of space and time. Through the exploration of the representation of movement, we arrive at a concept of time which, distinct from its linear representation, is felt in multiple ways.

The second section explores the potential of transient action of the body in reshaping the individual's relationship to their environment. Individual experience may produce a subjective sense of space and time, through the understanding of the reciprocal relationship existing between body and space.

The third section considers space as a concept which is produced through human action, shaped through multiple, interacting forces. The effects elements of urban character have upon individual experience is explored as a conceptual reorganization of physical space based on one's experience of it.

These theoretical investigations lead into the design project section of the thesis, which explores the potential of incorporating temporality into architecture through the application and reinterpretation of techniques of temporal representation. The project consists of the redevelopment of Ottawa's National Arts Centre, an aging cultural institution building in Ottawa's downtown core. Through the investigation of the temporal conditions which confront architecture, a more concretely felt, temporalized space is imagined which offers moments of transformative potential.

Notes

¹ Vattimo, Gianni. "Metaphysics, Violence, Secularization.", Borradori, Giovanna. *Recoding Metaphysics: the New Italian Philosophy*. (Evanston, IL: Northwestern UP, 1988) 45.

² See Nietzsche, Friedrich Wilhelm. *The Gay Science*. (Mineola, NY: Dover Publications, 2006).

³ Zabala, Santiago, "Gianni Vattimo and Weak Philosophy.", Zabala, Santiago. *Weakening Philosophy: Essays in Honour of Gianni Vattimo*. (Montréal: McGill-Queen's UP, 2007) 17.

⁴ Vattimo, Gianni. *The End of Modernity: Nihilism and Hermeneutics in Postmodern Culture*. (Baltimore: Johns Hopkins UP, 1988) 86.

⁵ Solà-Morales, Ignasi de, and Sarah Whiting. *Differences: Topographies of Contemporary Architecture*. (Cambridge, MA: MIT, 1997) 57.

⁶ Solà-Morales 59.

⁷ Solà-Morales 61.

Space, Time, and Visualization

“The essence of space as it is conceived today is its many-sidedness, the infinite potentiality for relations within it. Exhaustive description of an area from one point of reference is, accordingly, impossible; its character changes with the point from which it is viewed. In order to grasp the true nature of space the observer must project himself through it.”¹

-Siegfried Giedion, *Space, Time and Architecture*

The purpose of this section is to define the common conceptions of space and time which exist as common reference points in language and discourse, but fail to withstand a sustained examination in relation to our lived experience. Alternatives to these concepts will be explored in the next three sections of the thesis.

The philosophy of René Descartes has become a fundamental reference point to the common understanding of space, which found its primary expression in the modern period. It is noted by the French social theorist Henri Lefebvre that, “with the advent of Cartesian logic ... space had entered the realm of the absolute. As Object opposed to Subject, as *res extensa* opposed to, and present to, *res cogitans*, space came to dominate, by containing them, all senses and all bodies.”² Space in the Cartesian formulation is defined by the the relationship between inert bodies in which they appear in extension. As Descartes argues, “extension in length, breadth, and thickness constitutes the nature of corporeal substance.”³ Descartes’ idea of space refers solely to the property of its measurable extension in these three dimensions.

While the common understanding of Cartesian space refers to its three-dimensionality, and thus its geometrical properties, the real sense of Cartesian extension implies space is an abstract property of physical objects, which is subject to all the characteristics of extension - it can be measured, divided, shaped, and moved.⁴ Thus space came to be understood as a physical property of matter which measures the dimension of an object extended in the abstract notion of a space which contains all objects. Space then, became an abstract category in which it is possible to measure the amount of space an object occupies, or the amount of space between two objects; this concept is abstract however, as the concept of this measured space does not necessarily correspond to our direct experience of it. This presupposes a concept of space as an empty container which remains the same regardless of individual perception.

This abstract space may be defined as that which is infinite, and thus comprehensible only by the a process of reasoned thought. While this concept may appear to be a neutral quality, the property of its measurement and divisibility has tended to become the dominant criteria of what is thought of as space, which has led to the illusion of an objective knowledge of space. As the British architect Jeremy Till argues, this apparent objectivity is gained, "at the expense of suppressing other aspects of the human occupation of space whose social dynamics are less easy to deal with and

accommodate,"⁵ and it is through a process of reduction from which daily experience and lived space is emptied of contingency.

The architectural implication of this abstract space is the unconscious denial of those forces which are outside the control of the architect. Lefebvre has argued that the ways in which architects conceive of space is directly linked to the social realm, and that designing in terms of abstract space is an oppressive act, as the qualities of abstract space are those aspects of architecture which are easy to commodify and control.⁶ This abstract space is thus that which is experienced from a passive distance, external to the subject and contrary to lived experience. It is this appeal to the stability of abstract space which is one of the architect's defences against the forces of time. However, this representation of stability is not necessarily equal to stability of the built environment, which is subjected to all the forces of the real world.

Along with the abstraction of space, the ordering of time can be seen as another characteristic tendency of Modernity in its ability to see itself as unique in relation to all of history. Seeking to transcend the past and tradition with an orientation towards the future time was placed into the linear sequence of the chronology, a narrative representation of time which places events into an orderly succession, in the words of the Polish sociologist Zygmunt Bauman, "modernity is the time when time has a history."⁷ Indeed, the concept of

historical progress and transcendence, an idea peculiar to Modernism, implies a linear trajectory towards a specific, yet undefined goal.

With the demands of an increasing industrialization and urbanization came an increasing need for standardization and precision in the measurability of time. New technologies of representation were necessary for Modernism's reconceptualization of how time was made apparent. The rationalization of time took its most prominent form in the realization of World Standard Time, which arose from the development of the railway travel. Prior to this, there existed a multitude of local times that would all be slightly different from one another. In this context, it was extremely difficult for the railroads to maintain a coherent schedule, thus this standardization was an efficient means of organization.⁸ The speed of transportation and communication was a force which diminished the uniqueness of the local.

The desire to make time visible was the most common expression of this reconceptualization as a strictly linear conception. In its cultural representations, time is made apparent through its projection into space as movement. We can easily see this relationship in the clock, where a particular displacement represents the passage of a particular unit of time. With the rise of the measurement of time as a unit that can be traded, bought and sold, we also saw a correlation with the rise of personal timekeeping

devices; the pocket-watch became popular around the Industrial Revolution as a type of prosthetic device which extended the body's capacity to measure time.⁹ The clock does not produce time, rather time is already present in the various rhythms of nature; the clock merely standardized this time, allowing it to be correlated with capital economy. What we see in the linear conception of clock time is the flattening of all events into a generalized duration.

Through its projection into a spatial language, time becomes an abstraction transformed into units, measurable, divisible and homogeneous; time begins to take on the qualities of abstract space. We find that this version of standardized time is now external to the subject, less felt for its effects and more consulted for efficiency. This version of time is a reduced sense of time as it is expressed in nature; according to Lefebvre,

“In nature, time is apprehended in space - in the very heart of space: the hour of the day, the season, the elevation of the sun above the horizon, the position of the moon and stars in the heavens, the cold and the heat, the age of each natural being ... Time was thus inscribed in space, and natural space was merely the lyrical and tragic script of natural time.”¹⁰

It is this expulsion of natural time which is characteristic of Modernity, as it is only the externality of space which allows precise measure. It is often said that the uncertainties and dynamics introduced by the category of time, “entails a challenge to the primacy of the role of space.”¹¹ As a defence against this challenge, we see time projected into space

in order to remove all contingency, to make time economically productive and socially efficient.

The reductions of space and time can be seen to be a product of a tendency of our cultural situation, which is to present reality in terms of superficial, easy to consume, commodified images, which are abstractions of lived experience. This condition, which Lefebvre has termed the *predominance of visualization*, may be related to an impoverished understanding of the built environment, as the world is increasingly understood in these terms, at the expense of a deeper reading which takes into account multiple forms of information and ways of knowing. Thus, the overemphasis on the importance of the image has led to a superficial reading of the built environment, which is reduced to its ability to convey meaning visually.

The representations of the architect are not removed from this process of reduction. The orthographic drawing, the illusion of architecture as a form of objective knowledge, reduces the reality of lived space to a representation, "it is a visual space, a space reduced to blueprints, to mere images - to that 'world of the image' which is the enemy of the imagination. These reductions are accentuated and justified by the rule of linear perspective."¹² This tendency to make reductions reinforces the dominance of a purely visual abstract space, degrading all the possibilities of lived space. The space of the

architect is one that is typically mediated by graphic elements, which produces a representation of space that suffers from the illusion that it is presenting reality objectively. According to Lefebvre, "when compared with the abstract space of the experts (architects, urbanists, planners), the space of the everyday activities of users is a concrete one, which is to say, subjective."¹³ The privileging of space over time, and of the visual over all other senses tends toward a concept of space defined solely by its measurable qualities, in which mediation and representation are favoured to lived experience.

Notes

- ¹ Giedion, Sigfried. *Space, Time and Architecture: the Growth of a New Tradition*. (Cambridge: Harvard UP, 1959) 432.
- ² Lefebvre, Henri, and Donald Nicholson-Smith. *The Production of Space*. (Malden, Mass: Blackwell, 2009) 1.
- ³ Heidegger, Martin. *Being and Time*. (New York: Harper, 1962) 123.
- ⁴ Till, Jeremy. *Architecture Depends*. (Cambridge, MA: MIT, 2009) 120.
- ⁵ Till 122.
- ⁶ Till 123.
- ⁷ Bauman, Zygmunt. *Liquid Modernity*. (Oxford: Polity, 2008) 110.
- ⁸ Doane, Mary Ann. *The Emergence of Cinematic Time: Modernity, Contingency, the Archive*. (Cambridge, MA: Harvard UP, 2002) 5.
- ⁹ Doane 4.
- ¹⁰ Lefebvre p95.
- ¹¹ Kwinter 11.
- ¹² Lefebvre 361.
- ¹³ Lefebvre 362.

Temporality and Spatialized Representation
Section One

Fig.1. Tracing of a chronophotograph.

Bergson's Duration

"If things endure, or if there is duration in things, the question of space will need to be reassessed on new foundations. For space will no longer simply be a form of exteriority, a sort of screen that denatures duration, an impurity that comes to disturb the pure, a relative that is opposed to the absolute: Space itself will need to be based in things, in relations between things and between durations, to belong itself to the absolute, to have its own 'purity'."¹

-Gilles Deleuze, *Bergsonism*

Among architects there is a tendency to endow space with an existence which is separate from its contents, an infinite, divisible field that contains all events and all objects. The intention of this section is, however, to regard temporal experience as primary to the foundation of a concept of space. What we find is the abstract space of complete uniformity challenged by a space which emerges from processes of continual transformation, what the French philosopher Henri Bergson termed *duration*. Through an understanding of the nature of movement, we can better grasp the challenges raised by this inversion.

There are two fundamental qualities of any given motion, the space traversed and the act, or time taken by which it is traversed. According to Bergson, "We generally say that a movement takes place *in* space, and when we assert that motion is homogeneous and divisible, it is of the space traversed that we are thinking, as if it were interchangeable with the motion itself."² While the positions a moving body successively occupies do take up a

certain amount of space, the process by which it passes from one position to the other belongs to the temporal category. To define movement solely as 'a change in position' is to confuse time with its spatial projection. Opposed to the notion of a space that precedes experience, Bergson's notion of space is one that is actualized in the continual unfolding of duration.

It is through the solutions to the four paradoxes formulated by the pre-socratic philosopher Zeno of Elea that Bergson and his successors best express the relationship between time, space, and movement. Zeno's paradox of the arrow attempts to demonstrate the impossibility of movement through its division, "at each of the thousand instants, the arrow is where it is, though at the next instant it is somewhere else. It is never moving, but in some miraculous way the change of position has to occur *between* instants, that is to say, no at any time whatever."³ According to Bergson all the paradoxes consisted of essentially the same error, that of confusing time with space. The Canadian philosopher and social theorist Brian Massumi, heavily influenced by Bergson's views on movement and time, describes Zeno's paradox of the arrow in the following way:

When Zeno shoots his philosophical arrow, he thinks of its flight-path in the common-sense way, as a linear trajectory made up of a sequence of points or positions that the arrow occupies one after the other. The problem is that between one point on a line and the next, there is an infinity of intervening points. If the arrow occupies a first point along its path, it will never reach the next – unless it occupies each of the infinity of points between. Of course, it is of the nature of infinity that you can never

Fig.2. According to Zeno's Paradox of the arrow, before a shot arrow reaches its target, the arrow must first reach the halfway point, and then it must reach the halfway point between those two points, and so on unto infinity.

The space left to travel at each interval can be described in a numerical series as:

{1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, ...}

get to the end of it. The arrow gets swallowed up in the transitional infinity. Its flight path implodes. The arrow is immobilized.⁴

Movement, in this case, is entirely subordinated to the positions it connects, and this according to Bergson is the fundamental error, "in a space which is homogeneous and infinitely divisible, we draw, in imagination, a trajectory and fix positions: afterwards, applying the movement to the trajectory, we see it divisible like the line we have drawn, and equally denuded of quality."⁵ For Bergson, space is not a neutral background onto which movement occurs, rather space is created through movement, Zeno is wrong because the progress precedes the position. As Massumi further explains, the points which are divided appear retrospectively, it is through an act of thought which we draw the path backwards from the movement's end, "if the arrow moved it is because it was never *in* any point. It was *in passage* across them all."⁶ Thus we find in Bergson's philosophy that there is a quality to movement which precedes space, and is not equivalent to simply just the spatial projection of time.

While it is often thought of time to be equivalent to a fourth spatial dimension, therefore taking on the same qualities of abstract space, of extension and homogeneity, Henri Bergson presents duration as that which is always different, even to itself. Duration is better understood as non-spatial and as a continuous multiplicity of conscious states, where past and present state form the whole of our experience.⁷ Bergson presents

Fig.3. Zeno's paradoxes can also be expressed as fractals, as the relationships are always the same regardless of scale.

In the paradox of Achilles and the Tortoise, Achilles is in a race with a tortoise, who has a head start of 100m. If we suppose the tortoise moves at 1/10th the constant speed of Achilles, by the time he reaches the point where the tortoise started, it will be 10m further along. By the time Achilles reaches this next point, the tortoise will have moved a further 1m. Thus when he reaches the point where the tortoise once was, he still has further ground to cover. According to Zeno, Achilles cannot overtake the tortoise with a finite number of steps, because of the infinite number of divisible points that constitute the tortoise's trajectory.

duration as a sense of time which is non-measurable and qualitative rather than quantitative. The concepts which he uses to define duration are continuity, a multiplicity of states, and a memory (of conscious states). The French philosopher Gilles Deleuze related duration to a process of *becoming*, “a change that is substance itself.”⁸ In other words, duration may be thought of as a continual process of change which underlies the reality of all things. In Deleuze’s reinterpretation of the Bergsonian tradition, duration is now to be understood not simply as a deeper reading of time, but as an *ontology*, the foundation of what we experience as reality itself. If the process of duration can be defined as successive states of qualitative change which permeate each other without precise division,⁹ it is thus heterogeneous, always different to its previous form, in opposition to homogeneous space. What we might think of as an object which endures despite time is an artificial snapshot of this continuity.

Deleuze relates the idea of duration to conscious experience because without a memory that connects two moments, a conscious state, there is only one moment or the other, and no duration can exist. However, duration is not thought as simply lived experience, because duration is a prerequisite of human experience. Time, as perceived through lived experience, is a concept which is inseparable from the duration that connects two instants, and the memory that connects them. This memory is seen as the continuation of what was into the present, “The human experience of perception hence pivots upon a

temporal lag, a superimposition of images, an inextricability of past and present. To that extent it is a perverse temporality, a nonlinear temporality that cannot be defined as a succession of instants.”¹⁰ Thus, memory is the *virtual coexistence* of separate versions of time in the present. This virtual coexistence of the past and present (and possibly the future) gives rise to a representation of duration which is derived from the spatial medium.

When we discuss time, it is not typically the idea of duration that we refer to. Instead, we think of time as a homogeneous medium, in which past states are laid out simultaneously in space. Bergson referred to this concept of time as *spatialized time*. This idea of time is not a true expression of duration because it replaces the immediacy of progression for its result, we commit the same error as Zeno, replacing the experience of the process of time for its abstraction. Although duration is non-representational and transcends abstract spatial concepts, it is problematized by the tendency which exists to spatialize time because of the pre-existing idea of abstract space. The problem that spatialization introduces in forming a concept of duration can be understood in relation to its reduction of time to a spatial language, as Massumi concludes, “[space] is a retroduction, by means of the standardization of measurement...Measurement stops the movement in thought, as it empties the air of weather, yielding space understood as a grid of determinate positions.”¹¹ The problem that arises in attempting to describe duration is that it is

fundamentally a non-representational concept, and the moment we think about it, we tend to spatialize it and risk removing the fullness of time from experience.

However, we should not simply reject outright the spatial representation of time that the theory of duration criticizes, we must only admit that the applications of this model are limited and are not the only measure of lived experience. If we can accept that the concept of spatialized time can be understood as a succession of a movement that, "is converted into simultaneity and is projected into space,"¹² then we can think of duration's representation as that which is preserved in memory by being converted into a spatial sequence. In other words, we project duration into a spatial medium, expressed in terms of measurable extension, and the progression of time takes the quality of a continuous line, in which the parts are laid out in an orderly, linear sequence. To say that duration is the foundation of space and of spatialized time is merely a matter of ontological priority, then the various representations of time and its spatializations can be used to reach a greater understanding of the concept of Bergsonian duration.

The Representation of Movement

"In fact, movement as physical experience is itself a composite: on the one hand, the space traversed by the moving object, which forms an indefinitely divisible numerical multiplicity, all of whose parts - real or possible - are actual and differ only in degree; on the other hand, pure movement, which is *alteration*, a virtual qualitative multiplicity...but which changes qualitatively each time that it divides."¹³

-Gilles Deleuze, *Bergsonism*

With new techniques for its representation, time becomes conceptualized, and even felt, in different ways. While it was previously shown that the concept of time was closely allied to its technological representations for means of efficiency, these representations were also closely related to the conceptual representations of Zeno, "[who attempted] to demonstrate, philosophically, the impossibility of movement and change given the reducibility of all movement to an accumulation of static states."¹⁴ This section illustrates, through the exploration of the foundations of early cinema, that through the process and the ability to *record* motion, all action comes to presuppose a process of externalization, in which a duration becomes spatialized into measurable and divisible instants in succession, but independent of each other.

According to the French physiologist Jules Etienne Marey, whose representations of movement are considered by many to be the precursor to cinematic technology, "the understanding of a movement implies a double knowledge, namely, that of space as well

as that of time.”¹⁵ If we can regard this as sufficiently descriptive of the nature of the relationship between the concepts, then we can say that time is measured in space through the intermediary of motion, and that we can use the concept of movement to mediate the concepts of time and space. Bergson describes the representation of duration as such:

“If I draw my finger across a sheet of paper without looking at it, the motion I perform is, perceived from within, a continuity of consciousness, something of my own flow, in a word, duration. If I now open my eyes, I see that my finger is tracing on the sheet of paper a line that is preserved, where all is juxtaposition and no longer succession; this is the unfolded, which is the record of the result of motion, and which will be its symbol as well. Now this line is divisible, measurable. In dividing and measuring it, I can then say, if it suits me, that I am dividing and measuring the duration of the motion that is tracing it out.”¹⁶

The trace that results is the record of the result of the motion. Because of the concept of unfolding, it is possible to conceive that a motion creates a record of time within space that is divisible and measurable. Movement thus has a dual aspect, the sensation, which is a part of our conscious experience, and they also describe a trajectory, claiming a space.¹⁷ When we pass from thinking of the act itself, and the trace of the act in space, motion can now be understood as a projection of time into space, a laying out in space of successive states as simultaneous.

The technique of chronophotography developed by Marey, can be interpreted in the same way, as a record of the result of a motion producing images of the successive positions of

a moving body in space. Marey believed that language was a slow and obscure way to fully express a sequence of events, and the graphic method provided by chronophotography was preferable for communicating the meaning of complicated rhythms that exist in nature.¹⁸ In the images produced, we see time represented as a multiplicity of simultaneous spatial positions, presented as spatial juxtaposition. This method for recording the moving body in space cannot be understood as images of movement directly, rather the technique produces images of position and succession, derived from the movement inhabiting space. As a variety of factors could influence the clarity of the final image, these two elements of movement, time and space, cannot both be measured in a perfect manner using this method, and one is necessarily compromised to gain a more accurate representation of the other.¹⁹ Thus we see with chronophotography, either time is precisely recorded, fully spatialized into a graphic representation; or the space inhabited by the moving body at any one instant is made slightly ambiguous.

Fig.4. Chronophotography are an example of temporal compression, where a segment of time is presented as spatial juxtaposition.

While Marey's subject of study was the physiology of movement, the tension between the spatial and temporal areas of his work forced him to explore the limits of the representability of both spatial and temporal relationships. While traditionally photography had been thought to contain a, "temporal and spatial unity," the frame of a photograph enclosing a fragment of a finite space at an instant of time, chronophotographs broke this unity, displaying multiple instants defining a duration of time in a finite space, "viewers now had to unravel the successive parts of the work in order to understand that they were looking not at several men moving in single file, but at a single figure successively occupying a series of positions in space."²⁰ The images produced are captured by recording with a camera, very brief periods of time via a rotating shutter. A single movement is projected onto a single frame of film as the successive positions the moving body once inhabited are recorded as the trace, or memory, of this movement. This method was crucial to the invention of cinema, because if the process of the apparatus is reversed, a movement is produced through a series of static images, as seen in the zoetrope. To reduce superposition of the successive images, while capturing a greater number of slices of time, Marey experimented with the representative power of photography, reducing the surfaces of the objects he was recording. To study the movement of humans, he would use an individual dressed in black with bright stripes and spots indicating limbs and joints. This reduced the representative photograph to the

Fig.5. Marey's Chronophotographs can be seen as an elaboration on Eadweard Muybridge's sequential photography.

Fig.6. The Zoetrope was a pre-cinematic device that reconstituted movement out of a series of static images.

quality of a diagram which indicated the various positions of the body, effectively isolating the specific subject he wished to represent, the mechanics of movement.

An understanding of the technique of chronophotography makes apparent that time as directly experienced has no distinct moments, as its parts do not begin or end, but each continues itself into the next. This, and some other types of graphic notation of movement eliminates preconceived understandings of particular actions and instead focuses on the effects produced in space and through time. A representation of movement can be understood as the projection of the succession of individual movements of a sequence, forming a memory or trace of the course of an event. In cinematography, this simultaneous presentation of a sequence is converted into a series of frames, a set of instants, where each frame borrows its particular significance from the juxtaposition of preceding and succeeding frames.

The obvious advance of cinematic technology over photography was the ability to inscribe a temporal progress into an image. Yet this movement is one based on division and reduction, "upon the sequential serialization of still photographs which, projected, produced the illusion of motion and the capturing of time."²¹ Bergson rejected the notion that the cinema could represent the truth of time or of movement, and in fact compares it to the technological embodiment of Zeno's fallacy, the spatialization of time. We find that

Fig.7. The subject was eventually reduced to the minimum surfaces necessary to better capture the movement itself.

Fig.8. The reduction of surfaces allowed for a greater number of instants to be captured with clarity.

logic of cinema is based not on movement itself, but on the photographic *instant*, and the *intervals* between frames (and their juxtaposition and alteration). The apparent movement of the cinema, much like Zeno's arrow arises out of a collection of stoppages.

A film is composed of a sequence of frames, static instants, which produce the illusion of seamless movement when projected at the correct speed. Although the understanding of what may define this photographic instant may change and take various forms, it is nonetheless central to the representability of time. The division into instants, as seen in Zeno's paradox and in chronophotography, relates to a fragmentation of motion and time in which the goal is to obtain the impression of a static object from one that is in fact in motion. Apparent continuity is achieved through an actual discontinuity, as the shutter replaces the continuity of duration. We find in cinema the reverse of this process.

The spaces in-between frames, the interval, is crucial to the representation of movement in the cinema. Peculiar to this form of representation, these interstices are exactly what must remain unacknowledged if the illusion is to be maintained. This peculiarity prompted Bergson to comment, "The movement slips through the interval, because every attempt to reconstitute change out of states implies the absurd proposition that movement is made of immobilities."²² While Bergson is correct in that none of these static instants has anything to do with movement, it is in the transition between states, the interval, in which it can be

said any apparent movement takes place. The interval of consciousness is that which separates one instant from the next, crucial to the representation of time, as otherwise one would be presented with a simultaneity of instants.

Fig.9. Three possible representations of a person walking.

Explorations in Chronophotography

The first series of explorations dealt with the translation of the rhythms of the body's movement into graphic form. Chronophotography was a successful medium for this translation as it incorporates the stable, mechanical rhythm of the rotating shutter to show the change in position of the moving body over a particular fragment of time. Various mundane movements were performed and recorded via this method to explore the details of this form of representation. The process can be adjusted to capture a greater or lesser number of instants, the graphic quality of the image depending on the speed of the moving body and the speed of the shutter.

The camera in this case records a particular duration as a series of juxtaposed instants, producing a final image which displays this tension between the result and the process. The chronophotographic process is not a direct translation of movement into image, as through the recording process, the camera and shutter act as an optical filter. This allows us to grasp in one image what we would not normally be able to see with the unaided eye. The mechanical rhythm of the shutter, and the intervals introduced between segments allows us to recognize the images as a representation of time. The process demonstrates the possibility of representing the effects of time through its projection into a spatial language.

Fig.10. Walking.

Fig.11. Running Jump.

Fig.12. Ascending steps.

Fig.13. Twisting.

Fig.14. Jump.

Fig.15. Standing jump.

Fig.16. Arc.

Fig.17. Turning.

Fig.18. Turning 2.

Fig.19. Standing and walking.

Fig.20. Standing.

Fig.21. Ascending a ramp.

Fig.22. Kneeling.

Fig.23. Turning.

Notes

- ¹ Deleuze, Gilles. *Bergsonism*. (New York: Zone, 1988) 49.
- ² Henri Bergson, "The Idea of Duration.", Bergson, Henri, Keith Ansell-Pearson, and John Mullarkey. *Henri Bergson: Key Writings*. (New York: Continuum, 2002) 64.
- ³ Russell, Bertrand. *Our Knowledge of the External World*. (New York: W.W. Norton &, 1929) 179.
- ⁴ Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. (Durham, NC: Duke UP, 2002) 6.
- ⁵ Henri Bergson, "Matter and Memory.", Bergson, Henri, Keith Ansell-Pearson, and John Mullarkey. *Henri Bergson: Key Writings*. (New York: Continuum, 2002) 217.
- ⁶ Massumi 6.
- ⁷ Ansell-Pearson, Keith, and John Mullarkey. Introduction. *Henri Bergson: Key Writings*. (New York: Continuum, 2002) 9.
- ⁸ Deleuze 37.
- ⁹ Bergson "The Idea of Duration" 61.
- ¹⁰ Doane 77.
- ¹¹ Massumi 10.
- ¹² Ansell-Pearson and Mullarkey 4.
- ¹³ Deleuze 47.
- ¹⁴ Doane 9.
- ¹⁵ Marey, Etienne-Jules, and Eric Pritchard. *Movement*. (New York: D. Appleton, 1895) 33.
- ¹⁶ Henri Bergson, "Concerning the Nature of Time.", Bergson, Henri, Keith Ansell-Pearson, and John Mullarkey. *Henri Bergson: Key Writings*. (New York: Continuum, 2002) 208-209
- ¹⁷ Bergson "Concerning the Nature of Time." 209.
- ¹⁸ Marey 2-3.
- ¹⁹ Braun, Marta. *Picturing Time: the Work of Etienne-Jules Marey (1830-1904)*. (Chicago: University of Chicago, 1992) 83.
- ²⁰ Doane 49.
- ²¹ Doane 208.
- ²² Doane 173.

The Multiplicity of Experience
Section Two

Fig.24. Tracing of a section of an improvised dance performed by William Forsythe.

Merleau-Ponty's Embodiment

"But the system of experience is not arrayed before me as if I were God, it is lived by me from a certain point of view; I am not the spectator, I am involved, and it is my involvement in a point of view which makes possible both the finiteness of my perception and its opening out upon the complete world as a horizon of every perception."¹

-Maurice Merleau-Ponty, *The Phenomenology of Perception*

This section explores how the actions of the body of the subject, as a temporally based phenomenon, can affect one's perception of the space in which they occur. If we are not interested in the concept of the body as a part of a static, centralized, perspectival space, then let us explore the concept of body as it moves through space, and why this movement may be considered more than a passive element of experience, as part of a system of dynamic flows which is capable of reshaping the body's relationship to its environment. If we seek to explore alternatives to the tendency towards abstraction and disengagement from the world, our concept of the space and the external world needs to be reassessed as something that is not separated from our direct experience of it

While space is often thought of as homogenous and external to us, various qualities that make it perceptible to us are phenomena derived from the presence of a conscious body, such as directionality, envelopment, and orientation. Qualities such as these are necessary to the understanding of space, and are meaningless without a conscious presence. According to Merleau-Ponty, we arrive at a concept of space and time through

our engagement and movement throughout the world, as Merleau-Ponty states, “my body is a thing among things; it is caught in the fabric of the world, and its cohesion is that of a thing. But because it moves itself and sees, it holds things in a circle around itself.”² Indeed, the concept of *embodiment* hinges on the the fact that we grasp external space through the situated body, and it is only through our bodies that we have direct access to space. It would be useful to consider here what Merleau-Ponty means here when he speaks of *body*. For him, our bodies cannot be objects for ourselves, as we are self-conscious beings. It can be said then that, “we have an intimate, pre-objective awareness and understanding of our bodies.”³ Our body, while being our means of perception, is also a part of the world in which we perceive. There is no experiential distinction between *subject* and *object*, as traditionally conceived.

While we might think in terms of abstract, measurable space, objects in the world do not appear to us as points on a measurable grid. Rather, objects in space appear to us as relationships between other forms, distances, and the perspectivism of our own body. While the objects we encounter cannot be fully described by any single perspective, the constant reorientation of our bodies multiplies these perspectives, setting up a *perceptual horizon* from which our particular understanding of the world takes place. Moreover, what was said of the spatial perspective could be equally applied to a temporal perspective, “the perceptual synthesis [of the perceived world] is a temporal synthesis, and subjectivity,

at the level of perception, is nothing but temporality, and this is what enables us to leave to the subject of perception his opacity and historicity.”⁴

If the act of seeing necessarily implies to sight from somewhere, the viewer and the viewer’s position in space and time is an undeniable factor in shaping how an object or space appears to that viewer. The movements of the body, in this sense, cannot be said to be performed against an empty space or indifferent background, that is to say, movement and space have a highly interconnected relationship with each other, “we perform our movements in a space which is not ‘empty’ or unrelated to them, but which on the contrary, bears a highly determinate relation to them: movement and background are, in fact, only artificially separated stages of a unique totality.”⁵ We can then say that each movement occurs against a spatial and temporal background, which is in turn determined by the movement itself. It would be a simplification to say that our body is in space or in time, rather we may say that what we experience of the exterior world is relational to our embodied perspective.

According to the contemporary choreographer William Forsythe, the transient nature of the body’s action does not allow for a “sustained examination or even the possibility of objective, distinct readings from the position that language offers the sciences and other branches of arts that leave up synchronic artifacts for detailed inspection.”⁶ The idea of

this transience has led philosopher Alain Badiou to conclude that the essential nature of dance is, "to play time within space,"⁷ suggesting, perhaps, that the subject is better understood within this interaction, rather than of one or the other. While absolute relationships fix space, flexible relationships created in movement evade fixity, producing a space defined in duration, "by considering the body in movement, we can see better how it inhabits space (and moreover time) because movement is not limited to submitting passively to space and time, it actively assumes them, it takes them up."⁸ It is possible then, to consider the process of the body's movement as something which is capable of actively producing space and time, rather than simply existing within them.

The concept of the body as capable of actively producing and modifying spatial relationships is central to choreographic theory. Rudolf Laban constructed the most widely recognized system of dance notation (known as *Labanotation*), which postulated a three-dimensional *kinesphere* defined by points arranged in three dimensions around the body's central vertical axis. The notation system describes all movements in relation to these points and presented in a system with many similarities to musical notation.⁹ Contemporary to Laban was Oskar Schlemmer, the teacher of the stage workshop at the Bauhaus school from 1919 to 1929. Schlemmer was also interested in how the physical human form could relate to abstract theories of space. What can be found in Schlemmer's theory of space is in fact two separate notions of space, one arising from the human form,

Fig. 25. An illustration of Laban's idea of the kinesphere.

Fig. 26. An example of Labanotation. Unlike musical notation, it is presented vertically with each half of the staff corresponding to that half of the body of the dancer.

and the other from mathematical concepts. His background as a painter provided the more rigorously intellectual notions of space while the theatre provided a location in which to experience space directly.¹⁰ When writing retrospectively on the Bauhaus theatre experiments, Walter Gropius said of Schlemmer that, "it is apparent that he experienced space not only through mere vision but with the whole body, with the sense of touch of the dancer and actor."¹¹ Schlemmer's realization was that in theatre and dance, certain spatial relationships were created by individual performers, objects, and non-tangible elements, these relationships were modified and felt by the performer's various movements.

Schlemmer's notion of the experience of space was that of the "felt volume." The experience of space could be made more apparent, "if one were to imagine 'a space filled with a soft pliable substance in which the figures of the sequence of the dancer's movements were to harden as a negative form.'"¹² The performer had the distinct advantage of the immediacy of the space of the stage, creating their own space with their body in gestures, voice and movements, "[The dancer] obeys the law of the body as well as the law of space; he follows his sense of himself as well as his sense of embracing space."¹³ Thus for Schlemmer, the stage was an area of transient action, offering a mobile space of fluctuating spatial relationships.

Fig.27. This illustration by Schlemmer shows external space as continuous with the space of the body.

Costumes were often employed in the Bauhaus stage workshop to add further emphasis on this notions of space. Often acting to extend or hinder movement, these transformations would act to bring space to life by shifting the focus from the outline of the moving human form, to emphasize the mechanics of movement, and to the direct impact this movement had on spatial relationships. In a demonstration entitled *Slat Dance*, the actions of the performer dressed in black could only be seen in long slats projecting from the limbs of the dancer. Other experiments included a costume made entirely of glass, and another with taut wires projecting from the performer to fixed locations in space. This “transfiguration of the human form”¹⁴ had the capacity to manifest the intangible qualities of space.

William Forsythe’s choreography has a capacity for capturing similar contingent qualities of space while attempting to move beyond the singular centre of Laban’s representations, constructing a space which is transient and fleeting, fading in and out of definition. Forsythe rejects the limiting assumptions of choreographic convention, interested directly in the movement itself, various models and spatial concepts act as the source for further movements.¹⁵ While he describes his work as simply, “organizing the body spatially,”¹⁶ it is through a process of applying spatial transformations arising from the body that his choreographic method arises. In a series of short instructional videos, collected under the

Fig.28. *Slat dance*, 1927, performed by Manda von Kreibitz.

Fig.29. *Imagining Lines*, from *Improvisation Technologies*.

title *Improvisation Technologies*, Forsythe makes his understanding of the body, of space and his choreographic method explicit.

Forsythe works with ballet dancers since they are trained to match forms in space, and to know precisely where they are and how their body is positioned in space. Points, lines, planes, and volumes are then imagined in space or projecting in and around the dancer's body to produce a geometric space which is navigated, constantly setting the body off balance and into new positions, producing new movements and defining the space.¹⁷ This method is set apart from traditional choreography because it is not concerned with the end result of movement, rather in the process of producing movement internally. Forsythe's method could be described as producing movement through a series of distorting operations applied to the body of the dancer and the space of the stage, defining a precise, yet transient spatial environment. The end result does not depict any existing space, but rather a space of potential, which emerges as the dance unfolds through time. The movements of the dancers forms a second, ephemeral, space within the space of the stage. This ephemeral space emerges solely from its own processes, contained within and projected from the body of the dancer.

We can see in these examples that the sense of the body's spatiality is related to the internal senses, particularly those of *proprioception* and *kinaesthesia*. This sense of the

Fig.30. An overhead spatialized representation of a segment of *One Flat Thing*, reproduced.

Fig.31. A three dimensional representation of the surfaces created through time by the movements of the dancers in *One Flat Thing*, reproduced.

spatiality of the body can be understood in its immediacy as an effect of the sense of proprioception, the sensation of the position of one's own muscles and ligaments, which is differentiated from the tactile or the visceral.¹⁸ Proprioception translates the body's encounters with the world into a memory of relationships of the body's own positions throughout time, similar to Schlemmer's notion of the felt volume. Since this sense is only concerned with the relationships that exist within the body, proprioception registers the qualities of experience as continuous movement,¹⁹ or rather the experience of continuous duration as it is expressed within space. In the encounter between the body and the externalized world, proprioceptive memory registers movement as continuous sensation under constant variation. Indeed, the shape of space as experienced by the body directly may in fact be defined more by the referencing of the movement of the body to its own continual variation, rather than its visual characteristics.

The sense of kinaesthesia, while closely related but distinct from proprioception, refers to the sensation of one's own movement, it is also more directly related to the experience of the impact of one's movement on one's perceptual array.²⁰ The major factor which conditions our experience of the world is that all of the senses are located within bodies that are capable of movement, and therefore all of the sensory modalities are modified by this fact. It can be said that such movements are not merely an addition, but are constitutive of sensation.²¹ A shift in position is more than simply a shift in the visual axis,

Fig.32. Steven Holl, sketch for the Kiasma museum in Helsinki. The curved space shifts the vanishing point as the viewer moves through it.

but fundamentally alters qualitatively that which one sees, similar to the notion of *parallax*, which is, “the apparent change in the position of an object resulting from the change in the ... position from which it is viewed.”²² Steven Holl has argued that the apparent horizon, which is formed by overlapping perspectives formed by the movement of the body, determines one’s interpretation of space.²³ As position is changed, not only does the background change, but the relationship between viewer and object, and the relations among objects are altered. Parallax is the effect which arises from having multiple perspectives from which to experience the world, and takes into account context and the location of the viewer as a necessary part of any aesthetic experience.

Spatial movements are not performed against an empty, indifferent space or background. Movement and background bear a highly determinate relationship to one another.²⁴ To say our body is in space or time is an artificial separation and a reductive understanding of the situation, rather it is more useful when considering our perception of the world that we embody space and time, and through this capacity of the body we understand the space and time of the world. The embodied understanding of space challenges the notion that space is a void in which movement occurs. Movement is no longer subordinated to a change of position in an abstract space, but space, as it is experienced, is that which emerges from movement. Both time and space can be seen as concepts that extend from

Fig.33. The principles of parallax can also be used to make astronomical measurements.

direct experience and it is through our movement and engagement with the world that our sense of both is produced.

Subjects and Objects

"I see the next-door house from a certain angle, but it would be seen differently from the right bank of the Seine, or from the inside, or again from an aeroplane: the house *itself* is none of these appearances; it is... the perspectiveless position from which all can be derived...the house itself is not the house seen from nowhere, but the house seen from everywhere. The completed object is translucent, being shot through from all sides by an infinite number of present scrutinies which intersect in its depths leaving nothing hidden."²⁵

-Maurice Merleau-Ponty, *The Phenomenology of Perception*

What we find in the concept of embodiment is an approach to perception that interprets the distinction between perceiving subject and the objects of the external world in a way that acknowledges the contingency of the subject. This allows us to consider aesthetic experiences which do not proceed from an idea imposed on reality, but from the experience itself. What is to be taken away from a work of art in this case is located only within this situation, and does not attempt to refer to ideas outside of the experience itself. Art critic Michael Fried defines this sensibility as literalist and theatrical because, "It is concerned with the actual circumstances in which the beholder encounters the ... work."²⁶ The relationship between beholder and space as something malleable and interconnected can be seen in the *Building Cuts* of Gordon Matta-Clark.

In Matta-Clark's work, the normal circulation throughout a derelict building is interrupted by the physical presence of a void; these voids are sections of building cut out and

manipulated by the artist himself. The buildings used were always throwaway environments, in states of abandonment or those which have been slated for demolition. These cuts have a complicated presence within the building. Not only do they interrupt the spectator's expectations of a space, but also has the dual effect of charting the time of one's experience through the shifting of light across surfaces, as well as shaping the spectator's navigation of the void into an artistic experience itself. These building cuts express the fullness of the experience of duration through creating a unique relationship between the observer and the work of art. The static condition of the building is transformed through the incorporation of an *internal dynamism*, a condition where what can be described as boundaries or centres of the work are defined through the locomotion of the viewer.

Matta-Clark continually attacked the conventions of architectural activity, which included the conventions of orthographic drawing and the tendency to organize time and movement from the linear viewpoint, both conditions arising out of what Lefebvre and Matta-Clark critiqued as the oppressive qualities of abstract space.²⁷ The confrontation between the static aspect of his found spaces and the temporal experience of the spectator's experience of his voids conveys a relative indeterminacy and instability of the architectural whole in how it makes itself apparent to the viewer. The intention of Matta-Clark was to transform a derelict building into a place of activity and action through the

Fig.34. Schematic drawing for *Conical Intersect*.

Fig.35. *Conical Intersect* as seen from the street.

incorporation of a geometry secondary to the organizational logic of the pre-existing building. Matta-Clark's interventions had the capacity to transform a static, enclosed condition into an architecture which incorporated an animated geometry, activated by its kinetic qualities, actively engaging in the conditions of the viewer of the work. The experience of the work is a kinaesthetic activity, a certain form of interaction among objects and subjects. Through placing the viewer and the sculpture in the same behavioural space, the work changes the content of the perception of art by implying that the movement of the viewer is just as much a part of the total experience as the void itself.

The issue of scale can be seen as a quality that is contingent on the dynamics that are placed between elements in and around the work, including primarily the movement of the viewer but also other contingent factors. We should be careful not to confuse scale with merely the size of the cuts, as art critic Yve-Alain Bois notes, "all too often, scale is confused with size, which is always absolute... scale... is relative and is only concerned with proportions, whether it is a question of internal relations, or of external relationships."²⁸ The relative distance and proximity of the object and the observer contributes another dimension to the total sensibility of Matta-Clark's work, "The beholder stands in such a close relation to the object and becomes so intimate with the inner workings of its space and its constitutive components, that the capacity to scale the building cut is rendered extremely difficult."²⁹ The dynamics of Matta-Clark's work reached

Fig.36. *Splitting*.

Fig.37. *Splitting* detail.

a level of complexity that made it difficult to equate the object, or rather the lack of a portion of building where one would expect it, with the way it makes itself apparent to the viewer. The building cuts can be framed as a methodology to shape spectatorship itself as an artistic experience, through its object's scale in relation to the surroundings and the beholder, as the dynamics that occurs between elements within and around the art object necessarily includes the spectator as a part of the work itself. In this case the relationship between the art object and the subject perceiving the work is complicated through the introduction of the time it takes to experience the work, and the viewer's own navigation of the void, which asserts a personal temporality through the kinaesthetic experience of the work. Merleau-Ponty spoke of this phenomenon of scale in what he called the *chiasmic*, or overlapping, relationship between objects and subjects within the world in which, "The body [is] no longer conceived of as an object of the world, but as our means of communication with it," and the perceptible world conceived as, "the horizon latent in our experience and itself ever-present and anterior to every determining thought."³⁰

In a sense, there is a built-in demand of Matta-Clark's work that the subject move around the work. It would be impossible to summarize the fullness of the work from a single perspective, which invites the subject to move around the cut, producing engagement through the need to gather multiple perspectives, "the person encountering the building cuts is phenomenologically "disintegrated" - traversed by contingency, overwhelmed by a

Fig.38. The rose window cut of *Day's End*, which charts the apparent movement of the sun as a spot of light moving across the dark space.

surfeit of perceptual cues, and unmoored from the apparent givenness of architectural space.”³¹ Without a summarized view of the work in its totality which we are all used to from the commodification of architecture, the viewer is challenged to assemble their fragmented views mentally. The experience of the work becomes an exercise in assembling recollections, of connecting fragments of the past within the present by way of temporal superimposition. The acceptance of the relationship between human activity and the production of space is an acknowledgement of the contingency of temporal experience on the choices made by the viewer.

Matta-Clark attempted to record the experience of the building cuts using a variety of media, most notably photo-collages. His interest in representation moved gradually from, “snapshot documentation to a real preoccupation with this sort of documentation/time evolution of the piece ... to a kind of time and movement that it takes to experience the piece, and then beyond that to what happens to people in the piece.”³² The more successful photo-collages “operate by establishing a coherent motif (a recognizable perspectival or photographic space, a cut, a progression of cuts, and so on) according to which the constituent photographs are arranged. The remaining content of these constituent photographs clearly contest the coherence of this central armature.”³³ More than simply providing multiple viewpoints simultaneously, the photo-collages create a tension within the whole arrangement, which gives multiple modes of visual experience

Fig.39. Photomontage of the *Splitting* building cut.

similar to the building cuts themselves. The passivity of the viewer is challenged, as, “they are put not in more than one viewing position (Cubism) but rather are offered more than one mode of reception, a situation that appeals both to their reflective faculty (partial views to be synthesized) and to their body's scale and habit.”³⁴ A normal spatial situation, confined to the frame of the photograph, is interrupted by other images which contest the expectations of spatial coherence, the significance being that viewers can no longer adopt a single viewing position and remain outside the frame as they would with a traditional photograph or painting. The gaps and absences present in the photo-montages, and the sense that something is missing, ensures that the viewer takes on a constructive role in the formation of the final work.

No object is ever present to us neutrally, as the conditions under which the beholder observes the object are constitutive of its very meaning. Architectural spaces, through the extension of this concept can be seen to be qualified by the actions that occur within them. Bernard Tschumi states that the use, and by extension the experience, of architecture is an intrusion of the human body into a specific space.³⁵ While this relationship is the intrusion of one order into another; the intrusion of the physical human order into the abstract geometric order of architecture, the two are not independent of each other and are in fact inherent of the other's meaning. It can be said that architectural spaces are qualified by actions, because architecture is experienced by a certain

Fig.40. Photomontage of the *Circus* or *Caribbean Orange* building cut.

Fig.41. Photomontage of the *Circus* or *Caribbean Orange* building cut.

movement though it, just as much as actions are shaped and influenced by spaces. By their very presence, the movement of bodies disrupt the ordered geometry of architecture through the creation of new spatial relationships in the unexpected use and movements through space. The production of place in this sense is not a permanent, fixed object, but an event which necessarily includes the subject and other factors mediating the experience, and of which architectural space is only one of these factors. If we hold that space is no longer properly understood as continuous, homogeneous and stable, and that the action of the subject is necessary in the perception of the world, then architecture can no longer offer the illusions of permanence. Instead, architecture may offer a capacity for engagement in the production of these experiences as a point of encounter between an individual and a constructed reality.

This concept of the interdependence of subject and object as defining a possible basis for explaining the experience of architecture, can be understood as, “a point of encounter, a conjunction whereby the lines of a limitless itinerary cross with others to create nodal points of outstanding intensity.”³⁶ The addition of the complexities of the temporality of the beholder into the architectural event challenges the primacy of the concept of space, in which an architectural object is not defined by merely how it appears, but by the practices in which it takes part in and those which take place within it. As Jeremy Till has noted, “the very essence of time is its lack of essence; any version of time is bound to be disarranged

by another.”³⁷ Time most fully expresses itself as a multiplicity, presenting a diversity that challenges notions of stability and strength.

Fig 42 The *Conical Intersect* building cut under (de)construction, with the Pompidou Centre in the background

Spatial Projections

While the chronophotographs from the first explorations presented what were essentially movements along a two dimensional axis parallel to the camera. The resulting images gave the illusion of a depth which was not in fact present in the original movements. The second series of explorations attempted to investigate this condition of projecting movements into a spatial language further. The first spatial projection was an attempt to model directly this illusory depth. A chronophotograph of a walking movement was chosen to see what form would result from the reinterpretation of the action as a three dimensional space. The result was the repetition of the same unit, but slightly altered with each iteration. This then led to the creation of something which would mimic this behaviour when manipulated by hand. The result was a mutable surface made from wooden dowels and elastic string with hinged joints. This surface could then be manipulated by hand into a variety of different forms.

This process of projection was taken one step further by going back to the original chronophotographs and manipulating them digitally. Each image was rotated and scaled around two separate, arbitrary points in space. The resulting images produced unexpected results which began to suggest tectonic qualities which had a structure and logic which were drastically different from the source material.

Fig.43. Model of a chronophotograph projected into 3 dimensions showing the apparent depth

Fig 44 Model of a chronophotograph

Fig 45 Model of a chronophotograph.

Fig. 46. Mutable surface.

Fig.47. Spatial projection 1.

Fig.48. Spatial projection 2.

Fig.49. Spatial projection 3.

Fig.50. Spatial projection 4.

Fig.51. Spatial projection 5.

Fig.52. Spatial projection 6.

Notes

- ¹ Merleau-Ponty, Maurice. *Phenomenology of Perception*. (London: Routledge, 2006) 304.
- ² Maurice Merleau-Ponty, "Eye and Mind.", Baldwin, Thomas. *Maurice Merleau-Ponty: Basic Writings*. (London: Routledge, 2004) 295.
- ³ Rush, Fred. *On Architecture*. New York: Routledge, 2009 p12.
- ⁴ Maurice Merleau-Ponty, "The Phenomenology of Perception", Baldwin, Thomas. *Maurice Merleau-Ponty: Basic Writings*. (London: Routledge, 2004) 133.
- ⁵ Merleau-Ponty, "The Phenomenology of Perception" 122.
- ⁶ Forsythe, William, and Markus Weisbeck. *William Forsythe: Suspense*. (Zürich, Switzerland: JRP Ringier, 2008) 7.
- ⁷ Badiou, Alain. *Handbook of Inaesthetics*. Trans. Alberto Toscano. (Stanford, CA: Stanford UP, 2005) 61.
- ⁸ Merleau-Ponty "The Phenomenology of Perception" 106.
- ⁹ Guest, Ann Hutchinson. *Choreo-graphics: a Comparison of Dance Notation Systems from the Fifteenth Century to the Present*. (New York: Gordon and Breach, 1989) 155.
- ¹⁰ Goldberg, RoseLee. *Performance Art: from Futurism to the Present*. (New York: H.N. Abrams, 1988) 103.
- ¹¹ Gropius, Walter. *The Theater of the Bauhaus*. Trans. Arthur S. Wensinger.)Baltimore: Johns Hopkins UP, 1996) 8.
- ¹² Goldberg 104.
- ¹³ Oskar Schlemmer, "Man and Art Figure", Gropius, Walter. *The Theater of the Bauhaus*. Trans. Arthur S. Wensinger. (Baltimore: Johns Hopkins UP, 1996) 25.
- ¹⁴ Schlemmer 17
- ¹⁵ Spier, Steven. "Dancing and Drawing, Choreography and Architecture." *The Journal of Architecture* 10.4 (2005): 349-64.
- ¹⁶ Spier.
- ¹⁷ "Dance Geometry (Forsythe)." The OpenEnded Group. Web. 23 Nov. 2010. <<http://openendedgroup.com/index.php/publications/conversations/forsythe/>>.
- ¹⁸ Massumi 58.
- ¹⁹ Massumi 59.
- ²⁰ Rush 30.
- ²¹ Rush 30.
- ²² Bois Yve-Alain, and John Shepley. "A Picturesque Stroll Around Clara-Clara.", *October* Vol. 29 (1984): 32-62.
- ²³ Holl, Steven. *Parallax*. (Basel: Birkhäuser-Publishers for Architecture, 2000) 26.
- ²⁴ Merleau-Ponty "The Phenomenology of Perception" 122.
- ²⁵ Merleau-Ponty "The Phenomenology of Perception" 79-81.
- ²⁶ Fried, Michael. "Art and Objecthood.", Fried, Michael. *Art and Objecthood: Essays and Reviews*. Chicago: University of Chicago, 1998.
- ²⁷ Walker, Stephen. "Gordon Matta-Clark: Drawing on Architecture." *Grey Room* 18 (2005): 108-31.
- ²⁸ Bois Yve-Alain, "Matisse and Arche-drawing", Bois, Yve-Alain. *Painting as Model*. (Cambridge, MA: MIT, 1990) 24-25.
- ²⁹ Lee, Pamela M. *Object to Be Destroyed: the Work of Gordon Matta-Clark*. (Cambridge, MA: MIT, 2001) 141.
- ³⁰ Merleau-Ponty "The Phenomenology of Perception", p106
- ³¹ Lee 162.
- ³² Walker.
- ³³ Walker.
- ³⁴ Walker.

³⁵ Tschumi, Bernard. *Architecture and Disjunction*. (Cambridge, MA: MIT, 2001) 122.

³⁶ Solà-Morales 102.

³⁷ Till 94.

Space as Subjective Geography

Section Three

Fig.53. A mapping of the major festival spaces in Ottawa and their relationships to one another based on specific events.

Lefebvre's (Social) Space

"the long poem of walking manipulates spatial organizations, no matter how panoptic they may be: it is neither foreign to them (it can take place only within them) nor in conformity with them (it does not receive its identity from them). It creates shadows and ambiguities within them, it inserts its multitudinous references and citations into them (social models, cultural mores, personal factors)...in other words, it is like a peddler, carrying something surprising, transverse or attractive compared with the usual choice. These diverse aspects provide the basis of a rhetoric. They can even be said to define it."¹

-Michael de Certeau, *The Practice of Everyday Life*

This section focuses on how, through the actions of its users, urban space is incorporated as an element of social practice. Space is considered a social construct which while being both consciously and unconsciously produced, is constantly fragmented and disrupted through the interactions of its inhabitants. We have previously established that the word *space* typically evokes its abstract qualities, an empty area that can be easily defined by geometrical means of homogeneity, measurability and divisibility, what is known in physics as isotropic. As an example of this abstract space, in the modern period space was treated as an absolute quality, due to its characteristics of rationality and transparency, and was thus a space of common reference. Henri Lefebvre argued that this representational system of abstract space does not show any relation to its contents, and as a replacement proposed a theory of *social space*, in which all space we inhabit is intentionally produced by humankind. What Lefebvre recognized in abstract space was

that the space of the real world, the spaces of societies and nature, cannot logically gain existence from the intellectual representation of a mathematical description of space.

The foundational statement of Lefebvre's theory of space, "*(social) space is a (social) product*,"² undermines the popular myth that the individual architect or urban planner is the sole producer of space. Through the introduction of the social aspect of space and its production, any notion that space can be treated as an abstract matter, devoid of social content or context is abolished. Rather, the space in which we make our everyday lives is inherently political, in the sense that it deals with a certain set of relations between individuals, and is produced by means of organization and communication such as social relations, means of production, political systems, and individual spatial practices. Lefebvre's space consists of an interlinking of *spatial practices*, which characterizes the production and reproduction of space; *representations of space*, which includes the dominant conception of space and includes the production of signs and codes; and finally, *representational spaces*, which is the space of the inhabitants, it is directly lived through its images and symbols, and can be changed and appropriated.³

Every society thus produces its own space in a very real sense. Although here the word production is used to mean, "that humans create the space in which they make their lives; it is a project shaped by interests of classes, experts, the grassroots, and other

contending forces.”⁴ Therefore, we can see that the (social) space of any human society is not necessarily equivalent to its physical manifestation, “the content of the concept of space is not absolute space or space-in-itself; nor does the the concept contain a space within itself... Rather the concept of space denotes and connotes all possible space, whether abstract or ‘real’, mental or social.”⁵ When considered as an aspect of social practice, the focus of space shifts from objects in space, or space as objective, toward the continual production and reproduction of space, and the forces which shape this process.

The theory of social space implies a complexity which is much more than its formal or physical attributes, as the concept is defined by the intersection of a multitude of interacting forces. It is a combination of diverse elements, that, while having an existence in the physical world, also have an existence beyond their physical incarnations in the realm of social practice. It is relational in that it includes the networks and pathways that facilitates the exchange of material things and information. As Lefebvre summarizes,

[Social space] ... has a part to play among the *forces of production* ... appears as a product of singular character, in that it is sometimes simply *consumed* as a vast commodity ... shows itself to be *politically instrumental* ... underpins the reproduction of production relations and property relations ... is equivalent, practically speaking, to a set of institutional and ideological superstructures that are not presented for what they are ... contains potentialities - of works and of reappropriation.⁶

This theory significantly departs from the normative idea that space acts as a neutral backdrop on which life unfolds. Social spaces are relational to shifting societal forces and

to other social spaces, and can be seen to “interpenetrate one another and/or superimpose themselves upon one another.”⁷

Visible spatial boundaries inhibit our understanding of social space, giving the appearance of separation and division of what in fact may be an ambiguous continuity. A social space is not reducible to its formal and physical characteristics alone, nor is it a void filled with contents, it is rather a set of factors which serve to influence individual and collective actions, but is complicated by the fact that it is also shaped in part through this action. Thus, social space can be seen to incorporate the actions of both the individual and the collective. As a force that structures what can and cannot be done in a space, through utilitarian or symbolic means, architecture, in its normative practice, encourages certain activities and prohibits others, and thus operates in a condition between its ability to influence social practice through signification and its definition by its actual use. According to Lefebvre, “[social space] is to lived experience what form itself is to the living organism, and just as bound up with function and structure,”⁸ meaning that social space enables the everyday functioning of social practice. We can thus say that social space exists in the interaction between the built and natural environment, symbolic meaning, and daily routine.

Social space should not be thought of as an thing, object, or product, “rather, it subsumes things produced, and encompasses their interrelationships in their coexistence and simultaneity.”⁹ The ‘objects’ that compose a social space are not only the physical elements of the space, but also sets of relations which are capable of being rearranged and transformed. Thus the space we are dealing with is one shaped and produced by various forces deployed within the spatial practices of a given society. These forces are superimposed over the physical spaces of nature and the built environment, and thus transform the ways in which they can function and be understood. In its totality, social space is best understood as a multiplicity of layers, networks, and links which make up the functioning of society, or rather, how social forces are deployed in physical space. In its relation to lived experience, space understood this way is social morphology, in that the structure of social space is tied to the functioning of society in a way that they mutually influence one another. On the other hand, the indifference of content and container set up by abstract theories of space justify a strategy of separation. If a society’s spatial practices give shape to its social spaces, then each individual’s relationship to a particular space, and the collective’s relationship to space in general, implies an ability to act upon that space, qualifying space through human action.

Michel de Certeau expands upon this concept, considering the idea that bodily actions operate within fields of systems of signification, much like language. While the speech act

is a way of operating within the existing structure of an existing language of rules and syntaxes, the pedestrian enacts a procedural operation within the confines of the existing built environment. When compared to the order of the city, these movements within it tend to be erratic and resistant to easy qualification, "The act of walking is to the urban system what the speech act is to language."¹⁰ Even ordinary and everyday spatial practices can be seen as deviations from the 'literal' meanings of a space, as defined by architects and urban planners. The movement of pedestrians embodies both an analysis and the construction of a creative response to the dominant order of the city, "its curve takes time out from the industrious progression of the body through space, exposing prescriptive expectations as it ambles away from them."¹¹

This interpretation of the literal and deviated meaning of urban spaces can be said to construct the possibility of a play of meaning within the built environment. As Certeau has explained, this expansion of the difference in meaning between the intended and actual use of a space or cultural product, "far from expressing a void or describing a lack, it creates such. It makes room for a void."¹² This indeterminacy and ambiguity of meaning gives way to the possibility of articulating a secondary, personal geography over the defined structure of the city, as the user constructs their own vision of the city from within the pre-existing system. Detached from its origin and encountering the city as a found object, the inhabitant has the capacity to invent something in a space which is much

Fig.54. Diagram of all the courses taken in one year by a student living in Paris' 16th Arrondissement by Chombart de Lauwe.

different from what was intended. The lived city, the city as it is experienced directly, in this case is an active, continual construction produced by those who inhabit it. The presence of an official representation of the city tells nothing of what it is for its inhabitants.

This dispersed and fragmented reconstruction of space can be seen as a function of *appropriation*, a form of spatial practice which modifies a space for unintended forms of inhabitation, or as, “a spatial practice in which nature has been modified in order to satisfy and expand human needs and possibilities.”¹³ Any given space can outlive its original purpose and become vacant, thus capable of being appropriated for a use quite different from what was originally intended, moreover, Henri Lefebvre’s formulation of appropriation references very specifically that appropriation applies to, “an existing space [which] may outlive its original purpose and the *raison d’être* which determines its forms, functions, and structures.”¹⁴ These spaces are thus open to appropriation.

The significant aspect of the practice of appropriation is that every interpretation or use of an object modifies it. According to Certeau, the user, being detached from the position of creator, constructs their own interpretation from what is provided, assigning their own associations and meanings. Appropriation does not manifest itself through the construction of its own physical spaces, but through the ways of using existing spaces. Thus the gaps of meaning and ambiguous spaces in the urban fabric lend themselves to

Fig.55. As an extreme example of spatial appropriation, on May 10th 1968, demonstrators occupied a section of Paris' fifth arrondissement, barricading numerous streets, as indicated on the map. The normative space of circulation were in this case appropriated for purposes of protest. Map by René Viénet.

being appropriated for unexpected use. Social space exists in a transient state within a multiplicity of possible meanings and uses, what is important is not the space itself, rather how it is used, as the appropriation of space implies an incorporation of the diverse and complex lived times of its inhabitants.

Psychogeography

"All cities are geological; you cannot take three steps without encountering ghosts bearing all the prestige of their legends. We move within a *closed* landscape whose landmarks constantly draw us toward the past. Certain *shifting* angles, certain *receding* perspectives, allow us to glimpse original conceptions of space, but this vision remains fragmentary."¹⁵

-Ivan Chitcheglov, *Formulary for a New Urbanism*

Fig.56. Guy Debord and Asger Jorn, *The Naked City*.

Fig 57 Guy Debord and Asger Jorn, *Guide Psychogéographique de Paris*

The interrogation of the social capacities of urban space can be seen in the urban theories of the Situationist International (SI). They considered urbanism to be the projection in space of a social hierarchy that, as they argued, removed the possibility of conflict or participation through the artificial separation of people and activities. The fragmentation and appropriation of urban space was seen as a resistance to these tendencies of urbanism, which is demonstrated by their practices of the *dérive* and *psychogeography*. The SI challenged what they saw as the myths and contradictions of consumer society by asserting techniques of “radical subjectivity”, which allow forms of spontaneity, creativity, direct communication, and self-realization within the context of the existing urban environment.¹⁶ Their concept of *unitary urbanism* was based on the formation of a unified social environment, which did not recognize the separation of activities such as work and leisure or public and private.¹⁷ Thus, their aim was the unification of architectural and urban space with the social and individual body. Unitary urbanism is not to be confused with an approach to urban planning, rather it was “intended to broaden architectural concerns to the whole atmosphere of space and the possibilities of living in it.”¹⁸ The Situationist investigations into architecture and urbanism were aimed only at their psychological effect upon the individual, recognizing architecture only in its ability to create particular ambiances, and developed several methods to study the relationship between the material world and the subjective experience of it.

Psychogeography was the method of the SI critique of rational urban geography, in that it paid particular attention to the specific effects the geographical environment had on the emotions and behaviours of individuals, consciously planned or not. While geography deals with the action of natural forces in the environment, psychogeography paid attention to the elements of urban character that had an effect on the individual's perception of the street. For instance Guy Debord, the self appointed leader of the SI, described this effect as "the sudden change of ambiance in a street within the space of a few meters; the evident division of a city into zones of distinct psychic atmospheres; the path of least resistance which is automatically followed in aimless strolls ... the appealing or repelling character of certain places."¹⁹ The sorts of phenomena regarded by psychogeographers were those which are neglected by urban planners. For this reason, psychogeography was said to combine subjective and objective modes of study. The SI saw the practice of psychogeography as "an insubordination of the habitual influences of rational urban planning,"²⁰ and sought methods which could subvert and expose these manipulations.

The *dérive*, translated literally as drifting, was one of the principle techniques of psychogeography, described as, "a technique of transient passage through varied ambiances."²¹ The method of the *dérive* requires an awareness of psychogeographical effects and the ways the urban environment exerted influence, "abandoning themselves to the attractions of the terrain and the encounters proper to it."²² To undertake a *dérive* was

to notice how characteristics of the urban environment resonated with states of mind, and to seek reasons for movement within the urban environment other than those for which it was specifically planned, appropriating the city for one's own ends. Individuals on a *dérive* deliberately sought areas of the city that had a particularly intense atmosphere, which was composed of many things, but mainly the soft and mutable elements of urban character. The spatial field to be explored was either delimited or intentionally vague, depending on if the objects being studied were more geographical or psychological, although the very premise of psychogeography is that these two aspects overlap in ways which make it impossible to isolate them completely.²³ For example, distances between two sections of the city may, for the individual, have little psychological relation to the physical distance between them, depending on the route one may take.

The essential quality of the *dérive* is that the meaning of the city is changed through the way it is inhabited. The tension created through psychogeographical practices is not intended to lead to the construction of a new vision of the city, rather it is the construction of a more concrete social space within the existing environment in which participation is possible. The *dérive*, through the insertion of a certain degree of subjectivity into what were typically normative urban routines, was a means of exposing the potential for experimentation and play into the spaces of everyday life, and the way that existing spaces could be appropriated to create a new relationship to urban space. From the

accumulated experiences drawn from various *dérives* it was possible for the SI to create maps of influences which charted the various “unities of ambiance”, their psychogeographical orientation, and principle axes of passage throughout the city.

The psychogeographical maps constructed by Guy Debord and Asger Jorn, the *Guide psychogéographique de Paris* and *The Naked City*, record the accumulated knowledge and observations of several *dérives* conducted throughout Paris. The *Guide psychogéographique de Paris* consisted of cut-out fragments from the official *Plan de Paris*,²⁴ printed in black ink, which are linked by directional arrows printed in red, while *The Naked City* used cutouts from the *Guide Taride de Paris*, with a similar structure. On comparison to the actual layout of Paris, the viewer finds that the fragments have no logical relation to one another, nor to their proper geographic orientation, and the distance between the fragments do not correspond to the actual distance separating the various locales.²⁵

The practice of making maps, according to de Certeau, is linked with spatializing practices.²⁶ Traditional maps attempt to impose an ordering perspective, they are a form of description which ignores differences between geographical areas in favour of an objectifying homogeneity. In contrast to this homogenizing ideology, psychogeographic maps attempt to record various influences and attractions which determine the habitual

Fig.58. The *Plan de Paris*.

Fig.59. A detail from the *Guide Taride de Paris*.

patterns of residents navigating the city. These maps were constructed not during the process of the *dérive*, but through recollection after the fact, in the imagination, suggesting an intimate knowledge of the city and particularly the areas which are shown to have been investigated.

The idea of psychogeographical turntable is an area of the city in which certain characteristics influence the path taken by a subject on a *dérive*. These sections are cut-out and are linked by directional arrows indicating, "the spontaneous turns of direction taken by a subject moving through these surroundings in disregard of the useful connections that ordinarily govern his conduct."²⁷ The arrows linking the various fragments describes the functioning of the psychogeographical turntables, these "spontaneous inclinations of orientation" link various locations of ambiance, and dictate the path taken by the given subject, corresponding to the action of the railroad turntable.²⁸

The psychogeographic maps retained only those parts of Paris which they deemed were still worth visiting and rejected those they felt were corrupted by rational urbanism. This selective process has the effect of presenting an urban space which has been reconfigured to the desires of its creator, an act of reinterpreting the physical spaces of the city, not as spaces which have been determined by others, rather as spaces of imagination and possibility. Distances become blank areas in these particular maps, as

Fig 60 A map on which various locations for *dérives* have been circled in pen

Fig 61. Detail

the intermediary areas between these “unities of atmosphere” are removed, replaced by schematic directional arrows, a process of “opening gaps in the spatial continuum.”²⁹ This act denies space as understood by its formal context. Through denying the false spatial continuum presented by traditional mapping practices, this practice incorporates urban space as an element of social practice.

The psychogeographical maps reject the structure and unacknowledged assumptions of the Plan de Paris. Maps such as the Plan de Paris seek to describe the city as if it was wholly present to the observer from an infinite, hence impossible viewpoint. The city presented in this manner exists in a timeless present, through the map’s total revelation of the object. The viewer sees the city laid out before their eyes in simultaneity. Such an omnipresent and timeless view is seen from nowhere, “it is in fact impossible to occupy this space.”³⁰

Seeking to undermine these illusions of the objectifying and rationalizing practice of the map, the individual on a *dérive* chooses to operate under a form of deliberate blindness, encountering the city as if it were discovered for the first time. This stance is consciously adopted as it is characteristic of the inhabitant who confronts the environment as an opaque experience. The tension created between the descriptive and experiential aspects

Fig.62. An early sketch locating *unités d'ambiance*.

of the city are presented in the complicated organization of the psychogeographic map itself.

The city is no longer a collection of merely visual objects, but is a social construction which is constantly fragmented and disrupted through the interactions of its inhabitants. If the rational city of pure visibility is characteristic of abstract space, then this deliberate blindness is a subversion of this false perspective, and an assertion of the opaque nature of lived space. The psychogeographical maps are based on the idea of spatializing the actions of the psychogeographer, describing the city from the perspective of the mobile pedestrian, although not attempting to pretend to be able to accurately trace the path of the pedestrian through the city, rather it presents the city as experienced through time by a situated subject as continuous, yet undetermined and chaotic passage. Movements are organized around the psychogeographic turntables, constituting various narratives that unfold through time, unlike the false timelessness of the traditional map.³¹

The spatial practices of the situationists sought to demonstrate that this abstract space was in fact inherently contradictory, disguised only by a homogenizing ideology. As indicated by Lefebvre and Debord, directly lived space has moved toward the space of the conceived and perceived; in other words, social space has been denied in favour of abstract space. The map is thus revealed for its hidden ideological implications, a form of

discourse founded on the primacy of optical coherence, and the reduction of lived space to, "the undifferentiated state of the visible-readable realm."³² Situationist spatial practices were operations intended to contest this abstraction of the city, resulting in the appropriation of spaces that accommodated different interpretations. In order to incorporate the existing city into the realm of their spatial and ideological practice, the SI denied the conventions of spatial representation and produced their own discourse about the city.

Fig 63 A photographic documentation by Ralph Rummey (London Psychogeographical Society) following author Alan Woods in Venice.

Cinematic Interpretations

For the third exploration, a thirty minute walk throughout the National Arts Centre (the site for the project portion of this thesis) was recorded. A heart rate monitor was worn during this time to measure the physical reaction to the site and the events that happened to be occurring at the time. In theory this would monitor the body's response, through the change in the rhythm of heart rate, to a variety of factors including the topology of the route taken through the site (walking up stairs would be shown as a steady increase and drop in heart rate) or any unexpected encounters (which would be shown as a brief spike in heart rate). In comparing the output of the heart rate monitor to the video taken simultaneously seemed to show these correlations. A mapping illustrating these moments of intensity was then created to show how this interpretation of the experience of moving through the site was fragmented in memory.

This mapping was then used to create a film, where the timeline reflected a compressed version of walking through the site, with these moments of intensity as points which would stand out. Material for the project was then overlaid on top of this timeline showing the future condition of the site. This film moves from the two dimensional fragmentation of space seen in the previous examples, toward a fragmentation of space incorporated into the temporal progress of the film itself.

Fig.64. Cinematic mapping of the National Arts Centre.

Fig.65. Frames from the film.

Notes

- ¹ Certeau, Michel De. *The Practice of Everyday Life*. (Berkeley: University of California, 1984) 101.
- ² Lefebvre 26.
- ³ Lefebvre 33.
- ⁴ Molotch Harvey, "The Space of Lefebvre", University of California, Santa Barbara.
- ⁵ Lefebvre 299.
- ⁶ Lefebvre 349.
- ⁷ Lefebvre 86.
- ⁸ Lefebvre 94.
- ⁹ Lefebvre 73.
- ¹⁰ Certeau 97.
- ¹¹ Foster, Susan Leigh. "Walking and Other Choreographic Tactics: Danced Inventions of Theatricality and Performativity.", *SubStance* No. 2/3, Issue 98/99. (2002): 125-146
- ¹² Certeau 105
- ¹³ "Henri Lefebvre's The Production of Space." NOT BORED! Web. 23 Nov. 2010. <<http://www.notbored.org/space.html>>.
- ¹⁴ Lefebvre 167.
- ¹⁵ Chtcheglov, Ivan. "Formulary for a New Urbanism." Trans. Knabb Ken. *Internationale Situationniste* #1 (1953).
- ¹⁶ Plant, Sadie. *The Most Radical Gesture: the Situationist International in a Postmodern Age*. (London: Routledge, 1992) 38.
- ¹⁷ Debord, Guy. "Situationist Theses on Traffic." Trans. Knabb Ken. *Internationale Situationniste* #3 (1959).
- ¹⁸ Plant 57.
- ¹⁹ Debord, Guy. "Introduction to a Critique of Urban Geography." Trans. Knabb Ken. *Les Lèvres Nues* #6 (1955).
- ²⁰ Debord, Guy. "Introduction to a Critique of Urban Geography."
- ²¹ Debord, Guy. "Theory of the Dérive." Trans. Knabb Ken. *Internationale Situationniste* #2 (1958).
- ²² Debord, Guy. "Theory of the Dérive."
- ²³ Debord, Guy. "Theory of the Dérive."
- ²⁴ McDonough, Thomas. "Situationist Space.", *October* Vol. 67 (1994): 58-77.
- ²⁵ The descriptions on the maps read: Illustration de l'hypothèse des plaques tournantes en psychogéographique" (The Naked City) and, "Discours sur les passions de l'amour: pentes psychogéographiques de la dérive et localisation d'unités d'ambiance" (Guide Psychogéographique de Paris); these descriptions translate as, 'An illustration of the hypothesis of psychogeographical turntables', and 'Discourse on the passions of love: psychogeographical slopes of the dérive and locations of unities of ambiance'.
- ²⁶ Certeau 120
- ²⁷ McDonough.
- ²⁸ McDonough.
- ²⁹ Certeau 101
- ³⁰ McDonough.
- ³¹ McDonough.
- ³² Lefebvre 355-356.

Contingency in Architectural Practice

"The constant uncertainty may make everything seem bleak and almost hopeless, but if you look more deeply at it, you will see that its very nature creates gaps, spaces in which profound chance and opportunities for transformation are continuously flowering"¹

-Sogyal Rinpoche, *The Tibetan Book of Living and Dying*

We have seen in the previous sections that temporality is expressed as the major source of contingency in architecture which challenges normative interpretations of space. To incorporate temporality into architecture, it will be useful to move toward a working definition of contingency and determine how it might be better expressed in the practice of architecture.

The German sociologist Niklas Luhmann attempts to provide a definition of contingency when he states that, "anything is contingent that is neither necessary nor impossible."² The definition that contingency is that which opposes necessity comes from Aristotle's work *On Interpretation*; when presented with a pair of contradictory propositions, when the subject is universal and the propositions are of a universal character, one of the two propositions must be true and the other false, if a proposition is true, then it must necessarily be so. Therefore, it can be said that necessity arises from the logical fact that universal statements of affirmation or denial must be either true or false. A truth claim is called necessary when it is impossible for it to be false, and contingent when it depends

on some condition for its truth or falsehood.³ According to Aristotle, an event which is contingent may, “either take place to-morrow or not, but it is not necessary that it should take place to-morrow, neither is it necessary that it should not take place, yet it is necessary that it either should or should not take place to-morrow.”⁴ We can identify contingency as that which depends on the factor of time to prove its truth or falsehood. Necessity is linked with Platonic ideals because they do not depend on external conditions to be true, as is the case with geometry and mathematics. A contingent proposition contrasts this because it depends on an occurrence in the real world in order to be validated.

Zygmunt Bauman describes the modern period as attempting to produce a “vision of an orderly universe [...] the vision was of a hierarchical harmony reflected, as in a mirror, in the uncontested and incontestable pronouncements of reason.”⁵ If we are to understand contingency as that which escapes our immediate knowledge and implies a certain degree of uncertainty and unpredictability, then to achieve an order and certainty, any form of contingency must be eliminated. Bauman’s analysis of modernity highlights its tendencies to produce order, which arose out of a general fear of disorder. These attempts at establishing a homogenizing social order can be seen to have roots in Platonic political philosophy; “The first thing that our artists must do [...] is to wipe the slate of human society and human habits clean [...] after that the first step will be to sketch in the outline

of the social system.”⁶ Here we see the desire to clear humanity of all social difference in order to achieve an ideal social system. This desire is not too far removed from some of Le Corbusier’s early pronouncements, and his desire to cover architecture in “a coat of whitewash.” This desire, as a reaction to the previous century’s architecture, is presented as a moral good; “we would perform a moral act: *to love purity!*”⁷ The ordering tendencies of modernism are imposed as a system which desires to eliminate difference under one moralistic standard. This standard provides only a semblance of order over the complexity and flux of modern society, and as is true of Le Corbusier’s whitewash, the thin veneer of order is revealed as merely a representation of order, from which the reality of a rational order does not necessarily follow.

As we can see in the example of Le Corbusier, an attempt is made to remove architecture from the complexity of reality and place it within the realm of Platonic ideals, an autonomous realm where the forces of time and reality cannot alter the desired image of perfection. For Manfredo Tafuri, the contemporary crisis has its roots in early modernism, “whereas architecture, in searching for definitive solutions to the challenges it confronts, realizes one possibility among many, history places architecture before an open field of possibilities, exposing the most stable plans to unforeseen forces that inevitably disrupt them.”⁸ Thus we can consider the acceptance of the contingent, that which is unforeseen, as that which allows one to avoid placing architecture within the realm of ideals, separated

from the disruptions of the real world. The discipline and practice of architecture is not a fixed entity, rather it actively engages with the unforeseen, architecture is faced with problems and questions beyond that of just form and style, "Architecture is not an isolated or autonomous medium, it is actively engaged by the social, intellectual, and visual culture which is outside the discipline and which encompasses it."⁹ Notions of type and harmony, epitomizing the quest for a timeless architecture, provide merely a representation of stability in the attempt to rid architecture of its contingent factors. It is within this distance between the representation of stability and reality where temporality undermines architecture's fictions of timelessness. Ideas such as eternity, stability, and timeless qualities are in fact terms which deny the reality of the situations which architecture encounters and encompasses.

As has been discussed in the previous sections, the consideration of time and all its manifestations implies a challenge to the primacy of the role of space within architectural discourse; it is in the nature of temporal phenomena and the rhythms of daily life to cause disturbances in the conception of idealized orders and abstract space. Time is what keeps us grounded in the real, the quest for timeless perfection removes us from the dynamics of the everyday. The important factor in the analysis of contingency is its transformative potential. Systems which strive for order and certainty attempt to fix methods of practice into known ways of doing things; contingency contains the possibility of creating new

methods and courses of action. According to Jeremy Till, “contingency situates us in the real world, providing opportunities for transformative change while avoiding the siren calls of ideals.”¹⁰ Uncertainty creates gaps within society’s veneer of order in which opportunities for transformation are possible. These opportunities, what Henri Lefebvre called *moments*, exist as instants of dramatic change or disruption to everyday routine. Lefebvre interpreted moments as, “fleeting but decisive sensations... which were somehow revelatory of the totality of possibilities contained in daily existence. Such movements were ephemeral and would pass instantaneously into oblivion, but during their passage all manner of possibilities... stood to be both uncovered and achieved.”¹¹ In Lefebvre’s own words, “The theory of moments, then, is not situated outside of everydayness, but would be articulated along with it, by uniting with critique to introduce therein what its richness lacks.”¹² These moments were conceptualized as points of rupture within everyday life, but not separate from it, they are points of intensity that are alongside the banality of the everyday.

We find that our experience of the temporal is best expressed as an intersection of many contingent factors, various independent rhythms which coexist. The temporal here is conceived not as time as something that is measurable, rather it is thought of in the framework of nature as consisting of *flow phenomenon*, or as what Lefebvre described as *rhythms*. Lived experience is composed of many of these intersecting rhythms, both linear

and cyclical in nature; for example, “everyday life is shot through and cut across by the larger rhythms of life and the cosmos: days and nights, months and seasons, and more specifically still, biological rhythms. In everyday life, this results in constant interaction between these rhythms and the repetitive processes linked with homogeneous time.”¹³ For a rhythm to exist it depends on two factors. First, there has to be repetition in the movement, but a repetition which is not monotonous, and includes strong and weak accents; a differentiated, or qualified duration. Second, there must be an internal measure, a memory, trace, or effect which constructs from the rhythm an overall movement.¹⁴ The analysis of living rhythms implies a fundamental conceptual shift away from the discipline of architecture’s traditional concern with permanence, stability, and space, towards a concern with temporality as the cyclical, the linear, enduring, fleeting and unpredictable. This shift in emphasis is not undertaken on an ideological premise for its own sake, but rather only as an attempt to ground architectural theory in the world which it encounters everyday.

Notes

- ¹ Rinpoche, Sogyal. *The Tibetan Book of Living and Dying*. (New York, NY: HarperCollins, 1993) 105.
- ² Luhmann, Niklas. *Observations on Modernity*. (Stanford, CA: Stanford UP, 1998) 45.
- ³ Aristotle. *On Interpretation*. Trans. Annette Barnes. (Oxford: Blackwell, 1988) ch. 9.
- ⁴ Aristotle.
- ⁵ Bauman, Zygmunt. *Modernity and Ambivalence*. (Ithaca, NY: Cornell UP, 1991) 30.
- ⁶ Plato. *The Republic*. Trans. Reginald E. Allen. New Haven: Yale UP, 2006. 501a.
- ⁷ Le Corbusier. *The Decorative Art of Today*. (Cambridge, MA: MIT, 1987) 188.
- ⁸ Daniel Sherer, Translator's Preface. Tafuri, Manfredo. *Interpreting the Renaissance: Princes, Cities, Architects*. New Haven, Conn.: Yale UP, 2006.
- ⁹ Somol, Robert, and Sarah Whiting. "Notes Around the Doppler Effect and Other Moods of Modernism.", *Perspecta* Vol. 33, Mining Autonomy (2002): 72-77.
- ¹⁰ Till 61.
- ¹¹ David Harvey, Afterword, Lefebvre, Henri, and Donald Nicholson-Smith. *The Production of Space*. (Malden, Mass: Blackwell, 2009) 429.
- ¹² Ivain, G. "Henri Lefebvre and the Situationist International." *NOT BORED!* Web. 23 Nov. 2010. <<http://www.notbored.org/moments.html>>.
- ¹³ Lefebvre Henri, "The Rhythmanalytical Project", Stuart Elden, Elizabeth Lebas, and Eleonore Kofman. *Henri Lefebvre: Key Writings*. (New York: Continuum, 2003) 190.
- ¹⁴ Lefebvre, "The Rhythmanalytical Project" 194.

National Arts Centre, Ottawa
Section Four

NATIONAL ARTS CENTRE
CENTRE NATIONAL DES ARTS

Fig.66. National Arts Centre logo.

History of the NAC

The idea to create a centre for the performing arts in Ottawa originated from a proposal by Hamilton Southam, who came from a wealthy and well-connected family, and was to become the institution's first general director.¹ The project to construct the National Arts Centre (NAC) was made official by parliamentary mandate as one of the key projects to mark Canada's 1967 centennial. Officially opened on June 2nd, 1969, the NAC was to elevate the status of Canadian performing arts, acting as Canada's primary showcase for music, opera, dance and bilingual theatre.² Having a total area of just over 1.1 million square feet, the NAC is one of the largest performing arts facilities in the world, and includes the second largest stage in North America.³ Built with much technological struggle and political debate, the final costs came in over five times the initial \$9 million approved for the centre at a total of \$46.1 million.⁴

The approval for the project of the National Arts Centre was dependant on both the creation of a centre for the performing arts in Ottawa, and a summer arts festival to which the NAC would be a central attraction and provide much of the programming.⁵ Because of this additional element to the program, the Confederation Square site was ideal and had been chosen due to its central location and the possibilities it opened up for the NAC to be a cultural hub in the city. The attempts at the creation of a festival originating from the

Fig.67. Ariel photo of the NAC site in 1920.

Fig.68. Ariel photo of the NAC site in 1973 a few years after completion.

NAC has a laboured history; well intentioned proposals failed to draw in the projected number of visitors and running enormous deficits multiple times, between the first attempt in 1970, to the most recent in 1998.

The initial plan for the Summer Festival in 1970 was to have the key attractions of music, dance, and drama performances produced by the NAC with a wide range of attractions occurring elsewhere in the city, which would run from July 1st and continue for the entire month.⁶ These plans were cancelled due to a lack of funds and were most likely too ambitious. A scaled back Summer Festival was planned for 1971 with opera being the foundation of its programming. While financially successful in the first two years, the Summer Festival began to see declining revenue in 1973 until 1975, with 1976 being the most successful year, exceeding expectations.⁷ The eventual cancellation of the Festival in 1984 due to rising costs proved to be the point where the institution's success began to rapidly decline.⁸

In the 1990's, after the cancellation of the Summer Festival, the NAC saw its worst decade both financially and artistically in its history. In a document outlining the NAC's five year strategic plan to turn around the poor reputation the institution earned in previous decade, the institution admitted to straying from the strength of the original vision outlined by Hamilton Southam. As federal funds for the arts began to dry up, the institution did not

Fig.69. Ariel Photo while under construction.

Fig.70. View from MacKenzie King Bridge while under construction, 1966.

Fig.71. The Southam Hall under construction, 1967.

attempt to change in the face of adversity, and began to lose its role as the premier showcase of Canadian arts, and compromised artistic integrity. The NAC institution became, according to their own reports, "less visionary, less creative, increasingly bureaucratic - the landlord of an aging performing arts facility on the banks on the Rideau Canal."⁹ The NAC was created, through special federal distinction, to be a source of creativity and artistic inspiration for the country as a whole; "the NAC's mandate is to play a leadership role in fostering artistic excellence in all of the performing arts disciplines."¹⁰ In the 1990's it had failed in this role.

Its privileged status and parliamentary mandate means that the NAC has a certain responsibility to Canadian performers and audiences to make a difference in the national and international arts culture. In 2001, the NAC reviewed its mandate and identified strategic goals to regain its former reputation. These goals include:

1. Artistic Excellence - To foster artistic excellence and innovation in the performing arts disciplines
2. Going National - To become an arts centre that is national in its scope and impact
3. The Art of Learning - To make arts education a key pillar of our strategic vision
4. Earning Our Way - To finance our ambitious plans for the next five years
5. Audiences at the Centre - To develop deeper relationships with our audiences and patrons¹¹

Recently the Federal government under Stephen Harper approved \$56 million for upgrades and repairs to the building over the coming years. Currently the NAC is involved

Fig.72. The Southam Hall Lobby under construction, 1969.

Fig.73. NAC open house, 1969.

Fig.74. Artists rendering, 1964.

with many different forms of outreach intending to justify its continuing existence as a cultural institution and its value in an uncertain political climate.

Fig.75. An example of the original plans, showing the ordering grid composed of equilateral triangles.

Site Description and Context

Located in downtown Ottawa, the NAC is a large structure adjacent to Parliament hill and directly northwest of Confederation square and Ottawa City Hall, the immediate urban setting is also home to many other cultural icons in the city. The site is bordered by MacKenzie-King Bridge on the south-eastern side, Elgin Street to the south-west which turns onto Wellington / Rideau Street, and the Rideau Canal which cuts the site diagonally from the north to the east.

Fig.75. The NAC and surrounding context.

The site is steeply sloping with an approximately 40' change in elevation from street level to the pathway along the canal. While presenting an imposing facade toward the bordering streets, with the blank concrete walls of the fly tower of its main theatre topping out at approximately 88' above street level, much of the structure is in fact located below grade. The other side of the NAC is oriented toward the Rideau Canal, across from the Government Conference Centre, formerly the Union Train Station, and the National Congress Centre, which is currently under extensive reconstruction.

Pedestrian and vehicle traffic around the site is extremely heavy, although usage of the site itself is limited. Elgin Street and Wellington / Rideau Street are major vehicle thoroughways, with Wellington / Rideau Street serving the cultural tourist, providing a link from Parliament Hill to the Byward Market and Rideau Centre, Elgin Street serves the local population, providing a mixed use of pubs, cafes, small shops, residential units, and Ottawa City Hall. Mackenzie King bridge provides a crucial link for the east / west operation of the city's Transit-way, and is also being considered as a location for a station in the possible future expansion of Ottawa's light rail system. The Rideau Canal, a historic landmark and UNESCO heritage site, acts as a passage for boats moving through the city in the summer, and the last lock-station emptying into the Ottawa River is located directly across the Rideau Street bridge. In the winter, when the Rideau Canal is transformed into

Fig.77. The NAC along the Rideau Canal during the summer, with Parliament Hill in the background.

Fig 78. The same view during winter with the Rideau Canal as a skating rink.

a skating rink, and is a very popular activity for both residents and tourists. Confederation Park currently hosts many of the festival events that occur in the city throughout the year.

Due to time constraints in the planning and construction process, no design competition was held and the job was awarded to the architectural firm ARCOP from Montreal, which assigned the firm's partner Fred Lebensold as lead designer.¹² Lebensold claimed that the dominant formal theme of the building, the hexagon, was derived from the shape of the site; the intersections of Elgin, MacKenzie King, and the canal occurring at roughly 60 degree angles. While many critics claimed the building suffered from 'hexagonitis' because of this formal theme, Lebensold saw it as an expression of the times, derived from Buckminster Fuller's geodesic domes. Spaces within the building were intended to be largely column free, creating many engineering challenges.¹³ Lebensold determined that having the main entrance at the front of the building would result in traffic jams, and made the decision to place the main entrance of the building at the back of the site near the canal, rather than near the street, leading visitors down a long road to an entrance under the largest roof terrace.¹⁴

The exclusive use of concrete for structural and cladding purposes, which would classify the building as brutalist, allowing the union of form and structure,¹⁵ and supposedly providing a cheap and reliable construction method. The outer walls and rooftop terraces,

Fig 79 The southern approach on Elgin Street

Fig 80 The northern approach on Elgin Street

Fig.81. A view of the main entrance from across the canal in winter

rather than being exposed concrete as the ethos of brutalism would suggest, are actually clad with concrete panels. While appearing as a flat, brownish colour from a distance, these panels are upon closer inspection entirely covered with numerous small pebbles embedded in the surface, perhaps an attempt to soften the stark quality of such a large quality of exposed concrete, or to protect against staining of the concrete, which would be a problem in Ottawa's climate, and one of the most often repeated criticisms of the brutalist style.

Fig.82. A detail view of the cladding texture.

Fig.83. A view down the sidewalk of Elgin Street looking north, showing the street presence.

Layout and Organization

Fig 84 Plan showing the internal layout

In its current condition, the NAC consists of four main performance areas. The first is *Southam Hall*, named after the NAC's founder Hamilton Southam, is the largest theatre at 2323 seats, and is suitable for orchestra performances, opera, ballet, and other large productions. This is the theatre which is closest to Elgin street and the largest object visible on the site. The next largest stage is simply called *Theatre Hall*, at 897 seats, and is used for dance performances and both English and French theatre. Both of these theatres use a fly tower design, which enables props and scenery to be quickly changed via an overhead system, which accounts for the height of the theatres. There is also *The Studio*, which follows a black box theatre concept, without a fixed seating arrangement. In 2001 *The Fourth Stage* was created through the renovation of the Elgin room with a capacity of 150 seats, and which focuses on community programming.

Each of the three main stages has its own lobby with stairwells providing vertical access to their respective differing balcony levels, and each of these connects to the double height main lobby space which is situated adjacent to Southam Hall and Theatre Hall. The main floor of this space also serves as the formal entrance to the building, which brings traffic around the back of the building, opening onto the canal, which has the inverse effect of closing the building along the street. The main lobby includes the ticket booth and an area for group meetings on the mezzanine above. *The Salon* is a smaller space for lectures and art shows just off the opposite end of the main lobby. Theatre service spaces

Fig.85. The main lobby during a special event.

Fig.86. Southam Hall.

Fig.87. The Theatre.

and mechanical spaces are situated behind the theatres facing MacKenzie King Bridge. The offices of the NAC institution are located behind the studio, oriented toward the intersection of MacKenzie King Bridge and the Rideau Canal. The NAC's restaurant, *Le Café* is located underneath the vehicle ramp leading to the parking garage, opening directly onto the Rideau Canal's boardwalk.

The offices, service and mechanical spaces form a podium which wraps around the three main theatres above street level. This elevated space was formed into a series of interconnected terraces, which was intended for outdoor performances and gatherings. Currently this space rarely sees any use, possibly due to the fact that there are few access points and the spaces are awkwardly shaped by the hexagonal forms of the theatres, leaving only one large space above the main lobby which could be usable, but is occupied by a temporary tent-like structure which is sometimes rented out for meetings.

Because of a government policy in which a certain percentage of a building's capital cost was to be used for public artwork, there are several notable pieces throughout the complex:

- A set of cast-aluminum doors by Jordi Bonet serve as the entrance to The Salon
- A tapestry in The Salon by Alfred Manessier titled *Secret Lake*.
- The Southam Hall stage curtain was designed by Micheline Beauchemin.

Fig.88. Ariel photo showing the rooftop terraces and tent structure.

Fig.89. Stairwell with one of the William Martin glass sculptures.

Fig.90. The main entrance, mezzanine, and rooftop terrace.

- A bronze statue of *The Three Graces* by Ossip Zadkine
- Glass sculptures by William Martin hang in each of the five hexagonal stairways
- A 3-storey mural on the Oasis wall, outside of The Studio by William Ronald

Fig 91 Lobby of The Studio and the mural by William Ronald

Fig 92 The four levels of the Southam Hall lobby facing north

Notes

- ¹ Jennings, Sarah. *Art and Politics: the History of the National Arts Centre*. (Toronto: Dundurn, 2009) 15.
- ² National Arts Centre. *National Arts Centre Official Website*. Web. 23 Nov. 2010. <<http://www.nac-cna.ca/>>.
- ³ National Arts Centre Official Website.
- ⁴ Jennings 10.
- ⁵ Jennings 25-26.
- ⁶ Jennings 99.
- ⁷ Jennings 121-132.
- ⁸ Jennings 185.
- ⁹ National Arts Centre. "Restoring the Vision: Strategic Plan 2001-2006." *National Arts Centre* (2001).
- ¹⁰ National Arts Centre Official Website.
- ¹¹ National Arts Centre. "Performing for Canadians: Strategic Plan 2008-2013." *National Arts Centre* (2008).
- ¹² Jennings 30.
- ¹³ Jennings 35.
- ¹⁴ Jennings 33.
- ¹⁵ Jennings 36.

Project Description

Because of these materials, methods, and layout employed in the original construction of the NAC, the relationships between programs has been fixed into a permanent edifice, unresponsive to potential change, and which has resulted in some awkward and ill suited solutions to programmatic fluctuations over time (for example, office spaces being placed in the upper lobby section of the theatre hall and the main lobby mezzanine being closed off to be rented out as a banquet hall). Any expansion of the NAC's program is prohibited by the fact that it is difficult to modify the existing structure. Additionally, museums and other artistic institutions are now striving to open up to more participatory ways of engaging the public, learning to embrace change and uncertainty, developing as flexible entities rather than trying to fix a permanent program. Being a public institution, the NAC would best serve the public by acting as the intersection between the artistic program and the common city resident and visitor to live up to its unique position. In order to regain its previous reputation as a relevant cultural institution, the NAC must redefine itself in a changing political and artistic climate than in which it was originally built.

For the approach to the redevelopment, it was assumed that the theatres and service spaces still functioned adequately and were not in urgent need of renovation. The focus was placed instead on the public areas of the NAC, particularly the accessible roof

terraces, the street presence, the theatre lobbies and the pedestrian approach from Elgin Street. These areas were identified as a series of *moments* which form the open-ended narrative of the project. These moments are articulated in the project as a series of four architectural interventions designed for the site, which could act to influence further changes on the site and elsewhere.

A general strategy was adopted to counter the rigidity of the current organization of the site. This is achieved by looking for opportunities to productively exploit the aesthetic potential of temporal phenomena. These phenomena are rhythms which occur on various levels of scale from the cosmic scale of solar movements to the smallest scale of the interactions of the visitors with the architectural elements according to their own individual sense of time. While many of these temporal phenomena do currently exist at the site, they are separate from the architecture itself, as the building was designed with formal spatial organization as the primary concern, the productive use and organization of temporal rhythms was at best a secondary consideration.

The current condition of the NAC can be seen as characteristic of the idea of space which is being reacted against in this thesis. The idea of using temporal moments as a method of dealing with the overbearing rigidity of the spatial organization of the site, can be seen as a metaphor for the way the idea of temporality fragments and reinterprets our

understanding of space in general. Thus the project portion of this thesis can be seen as a specific application of the general theory which has been previously discussed. The new additions proposed in this section are seen as a way for the NAC to redefine itself and regain its cultural relevance, similar to the redefinition of the relationship of space and time that has been discussed earlier.

Moment One: Rooftop Canopy

The first intervention onto the site was to create a large span roof covering for all the rooftop terraces and other publicly accessible areas, including the spaces along Elgin and MacKenzie King. Working from the original formal generating concept of the NAC, the equilateral triangular grid, this new roof structure is seen as an evolution of the process of the building rather than something which would be interpreted as a discrete addition. The approach taken here reinterprets the notion of historical time, which in architecture is typically manifested as a series of additions to a building over time, or by adhering to a historical style. To consider all buildings as in a process of change or evolution over time is to admit that a building is never truly finished and the idealized vision of the architect or client is not one that will remain stable over time.

To generate the form of the roof structure, the equilateral triangular grid that is seen in the original plans was distorted through the introduction of new forces. The first step was to create a 'hanging model' which uses the principles of the catenary curve to generate new spaces. A catenary curve is the shape a flexible chain or string will take when fixed at its ends and allowed to hang freely. As the string has no shear rigidity, and cannot support a bending moment, it will naturally take the most efficient form to carry the tensile loads

applied by the force of gravity. By utilizing this shape, the form resists loads applied to it through its geometric properties.

The outline of the existing building and the grid were drawn on a board which was suspended upside-down. Two crossing arches were then defined at the largest open areas where it was desirable to have a covering. This series of seven pairs of crossed arches was then input into a computer model of the NAC, where these arches were easily converted into a collection of domed surfaces. The triangular grid was then projected upwards onto these surfaces each intersection was trimmed. This continuous surface was then made into a model suitable for use on a computer numerically controlled (CNC) cutting machine. The extent of the surface was cut as a positive form, and the grid lines were also etched into the surface by the machine. The result of this process was a positive form of the space contained underneath the roof structure, which could then act as a template to construct a model of the structure with steel wire which would fit around the forms of the three main theatre spaces.

This approach recognizes that changes to a building are inevitable throughout its lifecycle, and in the case of the NAC, a framework for the acceptance of further change is important if it is to remain relevant to the rapidly evolving arts culture. This rooftop canopy has the potential to act as this framework. Because it is self-supporting, the spaces underneath it

can change with relative ease their level of enclosure based on the fluctuating programmatic needs of the institution over time. In this sense, the spaces created by the process is less about the construction of a fixed form and determined boundaries, and more about allowing an undetermined process to be started, which must be matched by the attitude of the institution itself if it is to be successful.

Fig 93 The hanging model

Fig 94 The roof template being cut on a CNC machine

Fig 95 The roof template completed

Fig 96 The roof model partially complete on the existing site model

Fig.97 Diagram of the form generating process.

Moment Two: Facade System

The second intervention was to design a facade system that would be utilized along Elgin Street and MacKenzie King Bridge to communicate aspects of the activity inside to the street as well as providing shading from the southwestern light which both facades would be exposed to. This facade system is a secondary skin which would wrap around the functional spaces and form a contrast to what would be a more conventional construction system for the expanded office and workshop areas.

The facade in this situation is seen as the point where the interior activity of the building intersects with the rhythms of the daily activity of the city and with the changing conditions of the seasons and the weather. The primary component of the facade is a system of glazed tile louvers that can be mechanically controlled from the interior. These louvers, attached to a cast steel operating mechanism, can individually rotate from fully open to fully closed to allow the occupants control over their exposure to the exterior. This allows for differing degrees of light and views to be allowed inside during the day, the quality of light admitted in these interior spaces would be modified from the reflection off the coloured glazed tiles based on their angle as well as the time of year.

This system broadcasts to the street the rhythmic occupation of the space throughout the day, and provides a different presence at night. The facade system also responds to the changing weather conditions and could be computer programmed to override occupant control in periods of severe weather, such as during one of Ottawa's harsh winter storms, in order to better protect the areas behind it. Along with the changing display material which advertises the performances occurring within the building, the grid of louvers provides a shifting presence to the street which is linked to the activity of the occupants and to the responds to the rhythms which surround it. Rather than blocking out and segmenting these rhythms, which is the method of most spatial planning, they are allowed to permeate the structure and interact with the activity inside the building itself.

Fig 98 Section of the facade system showing exploded details

Fig.99 Typical section showing the shadows cast by the facade system in a 4 hour section of time.

Fig 100. Elgin elevation during the day.

Fig.101. Elgin elevation during the night

Fig 102 Elgin elevation looking south

Moment Three: Elgin Street Entrance

The third intervention creates a new entrance into the NAC from Elgin Street, at the northwestern corner of the roof canopy. The new entrance replaces what is currently a large opening from the Southam Hall lobby which is partially covered by a series of large concrete fins, a theme which is repeated at each lobby. The new entrance takes on the idea of a volume of shifting light conditions. This begins with the form of the volume itself, which is conceptualized as a 'slice of time'. A computer model was created that shows the apparent positions of the sun in the sky from Ottawa's longitude and latitude, and was used to project onto the ground outside of this opening the line of the intersection between the roof canopy and the existing wall, a part of this projection which was deemed to be in good proportion to its surroundings was then chosen to define the form of the volume.

The volume reshapes the existing void which connects the four levels of the Southam Hall lobby, ending in a skylight oriented towards the sun's path over the sky. Between the skylight and the section of the roof canopy that continues into the lobby, is a layer of diachronic glass fins. Diachronic glass is a transparent glass material which contains layers of metal oxide. This gives the glass the ability to separate lightwaves, giving it the property of reflecting a different colour than it transmits. This layer of diachronic glass has the effect of filtering the light that enters the volume. As the angle of the sun's azimuth

changes, it will hit the glass fins at different angles, either being reflected, transmitted straight through, or refracted along the length of the glass, which will change the ambient light in the volume depending on the time of year.

The volume is clad in a frosted glass enclosure which is attached to a series of glass structural members. This cladding will emit a translucent shadow which will change in intensity depending on whether it is receiving direct or indirect light. This change in its appearance is further emphasized by the fact that this will be reversed at night as the volume emits light, allowing views into the lobby and to provide a dramatic entrance for visitors coming for evening performances. This new transparency will allow the gathering of people before and after performances within the lobby to be viewed from Wellington Street and moving southward on Elgin Street.

Fig.103. Diagram of the apparent position of the sun throughout the year.

Fig.104. Diagram of the projected volume at the solstices and equinoxes.

Fig.105 Section through Southam Hall showing the volume chosen to define the entrance.

Fig.106. Detail of the entrance section.

Fig. 107 Elevation of the new entrance.

Fig 108 Elevation of the new entrance

Moment Four: Main Lobby and Event Space

The last intervention includes the creation of an event space in the large area directly over top of the main lobby and a form of circulation between the two. In the original design of the NAC, this space was intended to be used for major festivals, but with the cancellation of the summer festival, the accessible rooftop area has in recent years seen little use and is closed off during the winter due to the buildup of snow. With the covering provided by the canopy structure, this area could easily host outdoor performances, films, and large gatherings, and become once more a part of the festival industry in Ottawa.

The NAC is located in the city in a prime location for it to become a small part of many of the current annual festivals held in various locations in the city such as Winterlude, Bluesfest, or Canada Day. As the rest of the area of the rooftop has been appropriated for other uses through this project, events will be concentrated into this one space, which has been made larger and cleared of its former clutter, making it more attractive to event planners. Two sets of stairs connect this level to the pedestrian entrances at either end of the NAC site to handle the anticipated increase in circulation and become generally more accessible and inviting.

The circulation between the lobby and the event space is organized around the concept of a vortex. A structural member is revolved around an imagined line, derived from the position of the sun at its highest point at the summer solstice, slicing through the existing structure where they intersect and defining a void. The circulation between the two spaces is rotated around this central support, completing the vortex concept. Through organizing circulation in a way that offers a continually shifting perspective, this circulation offers an embodied experience of vision that is temporal and kinetic. The circulation within the space resists the tendency to present a space fully to a singular viewpoint, engaging the kinaesthetic sensations of the visitor. If we are to define an architecture by the activity that occurs within it, what can be considered space is continually in a process of determination and non-determination, allowing for new events which would not be expected to occur at the site to unfold over time.

Fig.109. Diagram of the central support.

Fig.110. Section through the main lobby showing the central support and circulation.

Fig.111. Section through the main lobby showing the central support and circulation.

Fig.112. Series of perspective views around the central support.

Fig 113. Series of perspective views around the central support.

Beyond the Thesis?

We have seen with the project of this thesis four different ways which time can be expressed in the material world and used to construct an architectural experience, although this is not a definitive documentation of all the possibilities of this method. Reflecting on the role of architecture is in relation to temporality and the construction of personal experience, we find that it is within the intersection of an individual's rhythms with the larger scale of the rhythms of the built and natural environment. In this sense, architecture has the capacity to construct moments of difference, intersections of a subject and the built environment which are depart from the normalcy and predictability of everyday experience. Expanding on this idea further, it could be possible to think of these moments as brief periods of temporal intensity that could be inserted in various places within the city, and within other institutions, forming a network of temporally inspired interventions which could enrich urban experience. In this project, the insertion of temporal moments has been conceptualized as agents of change within the institution, freeing the spatial constrictions of the building as it currently exists and inspiring an attitude more open toward change. If we are to think of this concept on a broader scale, what would the limits and implications be to influence change on a societal level?

Portfolio of Images
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Fig.114. North elevation.

Fig.115. East elevation.

Fig 116 Northwest overhead view

Fig 117 Northeast view

Fig.118. Detail view.

Fig.119. Detail view.

Fig 120 Detail view

Fig 121 Detail view

Time Apprehended in Space

Postscript

If we are to re-examine the questions posed at the beginning of this thesis, we find that an architecture of temporality does not wholly replace spatiality as the ontological foundation of architecture. Temporality does not provide a new reference point for architectural production, but rather provides a secondary lens from which to interpret our lived experience. We see in examples such as Zeno's paradoxes a confusion of the flow of time and its spatialization, which is closely linked to the possibilities of temporal representation, and gives insight into the relationship between time and space in regard to architectural experience. We find that the two are in constant interaction, and we can redefine the relationship between time and space as the relationship between the static instant and the flow of duration, in which the category of space presents one aspect of duration and makes it tangible to us. The static aspect of architectural space is thus not superseded by time, but can be redefined by it.

The theory of moments has been used in this thesis to construct a hierarchy of time as a complex spatial network. In contrast to the linear conception of time, everyday life is punctuated by these instants of intensity based on temporal rhythms. This constructs a notion of time which is experienced and understood in multiple ways, a process which is completed by the individual's engagement with the built environment and the rhythms of

the natural world. While the idea of abstract space includes the tendency to think of architectural space under one universal definition; the challenge that the exploration of temporality has posed to the traditional definition of architecture is that as the conditions under which we encounter a building may always be slightly different, it cannot be encapsulated into one fixed definition. If we are to conceive of architecture not as a static object but as a series of experiential moments defined through individual experience, we can think of how this degree of non-determination allows architecture to engage in the emergence of new events and situations. We have seen in the project portion an approach which takes a building which has failed in certain aspects of its social role; and attempted to begin a process of opening it up to change through cutting, morphing, inserting that respects the integrity of the original while creating a richer experience.

An architecture which emphasizes temporality does not construct a permanent edifice of meaning, but rather leaves itself open to changes in use and interpretations. The interpretation of the built environment in which reality is no longer conceptualized as unitary, instead, in its interaction with a situated subject, presents an architecture as a system of overlapping layers of potential determinations. It can be said that the advantage of this interpretation of architecture is in its capacity to open up new perspectives, and to break ground for new avenues of thought, and to embrace, rather than resist forces of change.

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Appendix A: Case Study of Lincoln Center, New York

This section demonstrates how temporality is manifested in the work of Diller Scofidio +Renfro (DS+R), formerly Diller + Scofidio,¹ through two examples ranging from their early work in performing arts and conceptual architecture, *PARA-site*, and The Eyebeam Museum of Art and Technology. These early works show a concern with the spatial conventions of society, the body of the viewer as a participant in the total work, and temporal experience. The intention of this case study is to show how these early concerns have been incorporated into DS+R's current redevelopment of Lincoln Center in New York City, a project which has numerous parallels to the design project of this thesis.

***PARA-site*, 1989**

The theme of bodies moving through space is a prominent theme of much of Diller +Scofidio's video installation work. In the 1989 *Para-site* installation in New York's Museum of Modern Art. This installation was an exercise in exploring the institutional filtration of perception via the theme of surveillance and the technological manipulation of space and time. The work operated based on live video material gathered from three locations around the building including the revolving entrance door, the lobby escalators, and the doors leading to the sculpture garden. In the gallery, images gathered from the circulation nodes, which every visitor must pass through, are recontextualized onto a

Fig.122. Video feed from the main entrance.

series of video monitors, including the unsuspecting viewers in a reflection about looking, the primary activity in the museum. Using three different definitions of a parasite (biological, technological, and social)² the *PARA-site* installation feeds off the existing systems within the museum, most importantly, the major circulation nodes and the visitor's expectations of the museum itself. No visitor to the installation could view the video feeds without already having been previously recorded and displayed. The main engagement of the work was the visitors who negotiate the space of the museum activating the installation through their varying reactions to it.³ The viewer and the image occupy the same space. Through a process of including the spectator as a significant part of the work itself, viewers who enter and move within the work are able to modify it.

The intention of *PARA-site*, in order to provoke reflection, was to interrupt the system of spectatorship in the museum setting through the technological filtering of vision. As the MoMA is a museum of an era defined by the supremacy of sight the aim was to expose the relationships of spectatorship which are inherent to the museum setting.⁴ The self-consciousness imposed by the installation turned the museum itself into an object of contemplation, where the spectators recognize themselves as such. The MoMA, as an institution for the appreciation and consumption of visual art, exists somewhere between being a space for the devotion of icons and a site for the commodification of images.⁵ Through the interruption of these pre-established modes of cultural perception, dialogue

Fig.123. The revolving doors of MoMa's main entrance

Fig.124 The gallery space displaying the video feeds.

and participation can be introduced into the public spaces of the everyday. The *PARA-site* installation challenged not just the visible conventions of space, rather it highlighted the social and political spatial conventions of the museum as an institution.

The Eyebeam Museum of Art and Technology, 2004

In their competition entry for the *Eyebeam Museum of Art and Technology*, DS+R sought to challenge the image of stability conventionally granted to buildings, by articulating conditions of programmatic overlap and impermanence.⁶ The Eyebeam, a new institution for contemporary media arts, was seen as an open site for both production and presentation. To achieve programmatic overlap and technological flexibility, the building concept is organized around a double ply ribbon that encloses either program space on separate sides and houses all of the building's technical infrastructure.

The various programs of the building were separated into two basic divisions, production and presentation, which was to maintain a symbiotic relationship. The membrane undulates from floor to wall to ceiling, separating the two programs and defining the program spaces, arranging interior activity while communicating this across the facade. At certain points, this membrane splits to align with another floor to provide moments of exchange between artist and visitor. Inhabitants from either program must pass by or through some of the spaces of the other, creating a condition of "controlled

Fig.125. An overall view of the gallery space.

Fig.126. Programmatic overlap diagram.

contamination.”⁷ The integration of programs which are traditionally distinct in this case share circulation and flexible program space. The residents and the visitors to the building have the ability to observe one another as they move through the building, occasionally sharing paths and programs. It is this organizational membrane which is shaped by the circulation throughout the building, and shapes its street presence and allows for the building’s everyday performance.

Lincoln Center, 2009-current

The Lincoln Center campus, which is located in New York City along Broadway a block west of Central Park, houses 12 separate institutions, including the Metropolitan opera and the New York Philharmonic.⁸ The project was heavily supported by the powerful Rockefeller family, as the Lincoln Center institution was initially led by John D Rockefeller III. Due to the scope and visibility of the project, the most prominent American architects of the day were commissioned to be a part of the design team, including: Philip Johnson (the New York State Theater), Wallace Harrison (the Metropolitan Opera House), his partner Max Abramovitz (Philharmonic Hall), Eero Saarinen (the Vivian Beaumont Repertory Theater), Gordon Bunshaft (the New York Public Library for the Performing Arts) and Pietro Belluschi (the Juilliard School).⁹ All the architects were instructed to follow a strict “modernized Classical” style and use travertine marble to bring unity to the whole composition.¹⁰ The master plan designated an enclosed, raised plaza with the main

Fig.127 Overall section

Fig 128 Ariel photograph showing the location of the site in its original context Lincoln Center replaced what was considered to be a rough and unattractive area of the city, as part of the plans of the Slum Clearance Committee in the 1960's.

entrances of each building facing onto it, having the reverse effect of placing the back of each stage close to the surrounding streets, reinforcing a inward looking design, isolated from the busy New York City streets, loading docks and parking entrances mark much of the south and west faces of the campus, blocking most pedestrian access.

The new master plan for Lincoln Center is organized around the principle of a general opening up and pedestrianization of the campus. The public spaces on Lincoln Center's plinth was intended for public activities, but often failed in that regard due to the campus' aloof street presence. According to Elizabeth Diller, "We were very much politically aligned with the clients to make the campus more open, more porous, to bring the outside in and to bring the inside out, to make these open spaces a destination for the public without tickets to an event."¹¹ The firm intends to achieve this end through a process of eroding the base and making parts that once appeared solid, transparent.

The first building to be renovated, and the only one completed to date, is the Juilliard School building, which includes Alice Tully Hall at the lowest level. The building itself is somewhat distinct from the rest of the campus, as it is separated from its main bulk by West 65th St, and completed in a distinct Brutalist style. The original building, which was laid out orthogonally, met with Broadway at an awkward angle as the street intersects the city grid at this point. The lobby for Alice Tully Hall was considered to be too low for its

Fig.129. Condition of the Juilliard School previous to the redevelopment.

Fig.130. View showing the original entrance into Alice Tully Hall.

Fig.131. Rendering from Broadway of the proposed design.

Fig.132. Rendering looking down West 65th Street.

function and uninviting, as its entrances were difficult to find. The fact that the space was mostly used at night made it feel even more cramped and dark.¹²

The renovation of the Juilliard building included the addition of 45000 square feet to the Juilliard School, an updating of Alice Tully Hall's interior, and a re-imagination of the public spaces and lobbies. Due to a height limit, the extension of Juilliard could only move horizontally. Instead of mimicking the original's orthogonal language, the new extension aligns with Broadway, creating a space for a new glazed lobby for Alice Tully Hall. The original building lacked much interaction with the urban realm. It is in this lobby space where it is clear that the building is very much focused towards manipulating and structuring the movement and everyday usage of the building into a form of performance itself, separate from the actual performance which take place in the hall. As Charles Renfro has pointed out, to expose the building to the street so that "going to the theater becomes theater."¹³

The original lobby was below street grade level with the entrance somewhat hidden underneath a monumental stair. DS+R have opened up the space by cladding the street facades with mullion-less glass suspended on a one-way cable wall system. The design carefully separates the lobby from street level, creating a direct visual connection between the lobby space and the urban realm, blending one into the other. A narrative sequence is

Fig 133 The corner entrance showing the underside of the Juilliard addition

Fig 134 The sunken entrance into the lobby

Fig 135 Looking out into the city from the lobby, a greater connection is achieved by eroding the solid base

created which begins with being able to see the interior activity of people and descending, in an almost ceremonial manner, a half-storey down to the now busy lobby. A small tier of seating has been added echoing the slope of the addition above, oriented toward the lobby. The sunken area, with steps that can double as seating, continues without break into the lobby itself. The most striking feature of the lobby is a curved wall clad with African Muirapiranga wood, which is a dark, almost blood red colour. A stone-clad bar and a suspended platform in front of this wall creates a destination to get refreshments or relax before or after a show. Before entering the theatre, visitors move into the side entrances which function as a sensory deprivation space, lined in dark grey felt and carpet. Inside Alice Tully Hall, the walls are lined with the same wood as was seen on the other side of the separation wall facing the lobby, except as a veneer. The lighting is concealed entirely within the wooden veneer, emitting a warm glow before performances. Despite the visual simplicity of these spaces, the architects have managed to construct a lobby space which unites the social performance and context of the space to merge with the individual's temporal experience of the space.

As Diller has stated in regard to the formal process of the Juilliard building renovation, "We were trying to work with the DNA of what was there, yet subvert the language to a new idiom."¹⁴ The renovation can be seen as an evolution from, rather than a reaction to Belluschi's original brutalist style, developing the new form from the same principles which

Fig.136. The wood clad wall wrapping the theatre with the stone bar in front.

Fig.137. The entrance room leading into the theatre. This space is intentionally muted in order to mediate between the activity of the lobby and what is showing in the theatre.

Fig.138. The backlit veneer of the theatre walls on acrylic resin.

informed the original design, but interpreted in a new way. It was in the context of the nineteenth-century understanding of time, as a sequence of discrete portions, that the notion arose that new additions should be separated from existing building through an articulated or separated joint.¹⁵ The approach taken here is the opposite, while the new work is distinguishable from the old building, the approach taken was to deny the joint between old and new. At the south facade, the same marble is used from the same quarry, and the addition appears as a literal extrusion of the old window pattern as it approaches Broadway, with the new windows punched out in seemingly random places within this extruded pattern. In this case, time is thought of as embodied in the lifecycle of the building itself, and continuous with its own past, present, and future. Distinct also from the historicist preservation approach, through the misappropriation of the original building's language a slippage is created in the sense that the addition blurs its own execution as something that is distinct from the original; it is an evolution, rather than an imposition of form.

In the works we have looked at here, the visitors can be said to perform the works temporally through their negotiation of its space and their responses to it. The social conventions of space as an immutable property is challenged by incorporating space as an active part of social context. In much of DS+R's architectural work, much of the final appearance of the building is often a result of social and experiential conditions that are

Fig.139. Under construction showing the original extent of the building versus the addition.

Fig.140. The 'blurred' joint between old and new.

Fig.141. The punched out windows of the addition contrasting the pattern of the original fenestration.

conceptually important to the project as a whole. It can be said that DS+R combines the static aspect of architectural space with its performative aspect, acting as a scaffolding for everyday events,¹⁶ a sensibility that can be seen carried through from their earliest works in the performing arts and into their move to the realm of architecture, and finally into their approach to the Lincoln Center campus.

Fig 142 The West 65th Street facade, showing the transition from old to new and the sloping underside of the Julliard School addition

Fig 143 Current condition of the northeast facade facing Broadway at dusk

Notes

- ¹ Charles Renfro became a partner in the firm in 2004
- ² The three definitions of parasite used by Diller and Scofidio come from Serres, Michel, and Cary Wolfe. *The Parasite*. Trans. Lawrence R. Schehr, Minneapolis: University of Minnesota, 2007.
- ³ Dimendberg, Edward. "Blurring Genres", Betsky, Aaron. *Scanning: the Aberrant Architectures of Diller Scofidio*. (New York: Whitney Museum of American Art, 2003) 67-80.
- ⁴ Dimendberg.
- ⁵ Diller, Elizabeth, Ricardo Scofidio, and Georges Teyssot. *Flesh: Architectural Probes*. New York: Princeton Architectural, 1994.
- ⁶ Mitnick, Keith. *Diller + Scofidio: Eyebeam Museum of New Media*. (Ann Arbor, MI: University of Michigan, A. Alfred Taubman College of Architecture and Urban Planning and Diller Scofidio, NYC, 2004) 6.
- ⁷ Mitnick.
- ⁸ "Alice Tully Hall and Juilliard School in New York.", *Detail* Vol. 50 (2010): 303-310.
- ⁹ Jayne, Merkel. "Alice Tully Hall, New York.", *Architectural Design* Vol. 79 (July-Aug 2009): 108-113.
- ¹⁰ "Lincoln Center undergoes a dramatic face-lift", *Architectural Record* Vol. 197 Issue 2 (Feb 2009): 23.
- ¹¹ Otero-Pailos, Jorge. "Morphing Lincoln Center.", *Future Anterior* Volume VI, Number 1 (Summer 2009): 84-97.
- ¹² Kolb, Jaffer. "Alice Tully Hall, New York, USA: Diller Scofidio + Renfro.", *Architectural Review* Vol. 225 (Apr 2009): 54-59.
- ¹³ Woolfe, Zachary. "Lincoln Center's 'striptease': It's the Architecture! | Capital New York." *Capital New York*. Web. 23 Nov. 2010. <<http://www.capitalnewyork.com/article/culture/2010/07/262024/lincoln-centers-striptease-its-architecture>>.
- ¹⁴ "Lincoln Center undergoes a dramatic face-lift." *Architectural Record*.
- ¹⁵ Otero-Pailos.
- ¹⁶ Incerti, Guido, Daria Ricchi, and Deane Simpson. *Diller Scofidio (+Renfro), the Ciliary Function: Works and Projects, 1979-2007*. (Milano: Skira, 2007).

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Works Cited

- "Alice Tully Hall and Juilliard School in New York.", *Detail* Vol. 50 (2010): 303-310.
- Aristotle. *On Interpretation*. Trans. Annette Barnes. Oxford: Blackwell, 1988.
- Badiou, Alain. *Handbook of Inaesthetics*. Trans. Alberto Toscano. Stanford, CA: Stanford UP, 2005.
- Bauman, Zygmunt. *Liquid Modernity*. Oxford: Polity, 2008.
- Bauman, Zygmunt. *Modernity and Ambivalence*. Ithaca, NY: Cornell UP, 1991.
- Bergson, Henri, Keith Ansell-Pearson, and John Mullarkey. *Henri Bergson: Key Writings*. New York: Continuum, 2002.
- Bergson, Henri, Nancy Margaret. Paul, and William Scott Palmer. *Matter and Memory*. New York: Zone, 1988.
- Betsky, Aaron. *Scanning: the Aberrant Architectures of Diller Scofidio*. New York: Whitney Museum of American Art, 2003.
- Bois Yve-Alain, and John Shepley. "A Picturesque Stroll Around Clara-Clara.", *October* Vol. 29 (1984): 32-62.
- Bois Yve-Alain, "Mattise and Arche-drawing", Bois, Yve-Alain. *Painting as Model*. Cambridge, MA: MIT, 1990.
- Braun, Marta. *Picturing Time: the Work of Etienne-Jules Marey (1830-1904)*. Chicago: University of Chicago, 1992.
- Certeau, Michel De. *The Practice of Everyday Life*. Berkeley: University of California, 1984.
- Chtcheglov, Ivan. "Formulary for a New Urbanism." Trans. Knabb Ken. *Internationale Situationniste* #1 (1953).
- "Dance Geometry (Forsythe)." The OpenEnded Group. Web. 23 Nov. 2010. <<http://openendedgroup.com/index.php/publications/conversations/forsythe/>>.
- Debord, Guy. "Situationist Theses on Traffic." Trans. Knabb Ken. *Internationale Situationniste* #3 (1959).
- Debord, Guy. "Introduction to a Critique of Urban Geography." Trans. Knabb Ken. *Les Lèvres Nues* #6 (1955).
- Debord, Guy. "Theory of the Dérive." Trans. Knabb Ken. *Internationale Situationniste* #2 (1958).
- Deleuze, Gilles. *Bergsonism*. New York: Zone, 1988.
- Diller, Elizabeth, Ricardo Scofidio, and Georges Teyssot. *Flesh: Architectural Probes*. New York: Princeton Architectural, 1994.

- Doane, Mary Ann. *The Emergence of Cinematic Time: Modernity, Contingency, the Archive*. Cambridge, MA: Harvard UP, 2002.
- Forsythe, William, and Markus Weisbeck. *William Forsythe: Suspense*. Zürich, Switzerland: JRP Ringier, 2008.
- Foster, Susan Leigh. "Walking and Other Choreographic Tactics: Danced Inventions of Theatricality and Performativity.", *SubStance* No. 2/3, Issue 98/99. (2002): 125-146.
- Fried, Michael. "Art and Objecthood.", Fried, Michael. *Art and Objecthood: Essays and Reviews*. Chicago: University of Chicago, 1998.
- Giedion, Sigfried. *Space, Time and Architecture: the Growth of a New Tradition*. Cambridge: Harvard UP, 1959.
- Goldberg, RoseLee. *Performance Art: from Futurism to the Present*. New York: H.N. Abrams, 1988.
- Gropius, Walter. *The Theater of the Bauhaus*. Trans. Arthur S. Wensinger. Baltimore: Johns Hopkins UP, 1996.
- Heidegger, Martin. *Being and Time*. New York: Harper, 1962.
- "Henri Lefebvre's The Production of Space." NOT BORED! Web. 23 Nov. 2010. <<http://www.notbored.org/space.html>>.
- Holl, Steven. *Parallax*. Basel: Birkhäuser-Publishers for Architecture, 2000.
- Hutchinson Guest, Ann. *Choreo-graphics: a Comparison of Dance Notation Systems from the Fifteenth Century to the Present*. New York: Gordon and Breach, 1989.
- Incerti, Guido, Daria Ricchi, and Deane Simpson. *Diller Scofidio (+Renfro), the Ciliary Function: Works and Projects, 1979-2007*. Milano: Skira, 2007.
- Ivain, G. "Henri Lefebvre and the Situationist International." NOT BORED! Web. 23 Nov. 2010. <<http://www.notbored.org/moments.html>>.
- Jayne, Merkel. "Alice Tully Hall, New York.", *Architectural Design* Vol. 79 (July-Aug 2009): 108-113.
- Jennings, Sarah. *Art and Politics: the History of the National Arts Centre*. Toronto: Dundurn, 2009.
- Kolb, Jaffer. "Alice Tully Hall, New York, USA: Diller Scofidio + Renfro.", *Architectural Review* Vol. 225 (Apr 2009): 54-59.
- Kwinter, Sanford. *Architectures of Time: toward a Theory of the Event in Modernist Culture*. Cambridge, MA: MIT, 2001.
- Le Corbusier. *The Decorative Art of Today*. Cambridge, MA: MIT, 1987.
- Lee, Pamela M. *Object to Be Destroyed: the Work of Gordon Matta-Clark*. Cambridge, MA: MIT, 2001.
- Lefebvre, Henri, and Donald Nicholson-Smith. *The Production of Space*. Malden, Mass: Blackwell, 2009.

- "Lincoln Center undergoes a dramatic face-lift.", *Architectural Record* Vol. 197 Issue 2 (Feb 2009), 23.
- Luhmann, Niklas. *Observations on Modernity*. Stanford, CA: Stanford UP, 1998.
- Marey, Etienne-Jules, and Eric Pritchard. *Movement*. New York: D. Appleton, 1895.
- Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Durham, NC: Duke UP, 2002.
- McDonough, Thomas. "Situationist Space.", *October* Vol. 67 (1994): 58-77.
- Merleau-Ponty, Maurice. *Phenomenology of Perception*. London: Routledge, 2006.
- Maurice Merleau-Ponty, "Eye and Mind.", Baldwin, Thomas. *Maurice Merleau-Ponty: Basic Writings*. London: Routledge, 2004.
- Mitnick, Keith. *Diller + Scofidio: Eyebeam Museum of New Media*. Ann Arbor, MI: University of Michigan, A. Alfred Taubman College of Architecture and Urban Planning and Diller Scofidio, NYC, 2004.
- Molotch Harvey, "The Space of Lefebvre.", University of California, Santa Barbara.
- National Arts Centre. *National Arts Centre Official Website*. Web. 23 Nov. 2010. <<http://www.nac-cna.ca/>>.
- National Arts Centre. "Performing for Canadians: Strategic Plan 2008-2013." *National Arts Centre* (2008).
- National Arts Centre. "Restoring the Vision: Strategic Plan 2001-2006." *National Arts Centre* (2001).
- Nietzsche, Friedrich Wilhelm. *The Gay Science*. Mineola, NY: Dover Publications, 2006.
- Otero-Pailos, Jorge. "Morphing Lincoln Center.", *Future Anterior* Volume VI, Number 1 (Summer 2009): 84-97.
- Plant, Sadie. *The Most Radical Gesture: the Situationist International in a Postmodern Age*. London: Routledge, 1992.
- Plato. *The Republic*. Trans. Reginald E. Allen. New Haven: Yale UP, 2006.
- Rinpoche, Sogyal. *The Tibetan Book of Living and Dying*. New York, NY: HarperCollins, 1993.
- Russell, Bertrand. *Our Knowledge of the External World*,. New York: W.W. Norton &, 1929.
- Rush, Fred. *On Architecture*. New York: Routledge, 2009.
- Serres, Michel, and Cary Wolfe. *The Parasite*. Trans. Lawrence R. Schehr, Minneapolis: University of Minnesota, 2007.

Solà-Morales, Ignasi de, and Sarah Whiting. *Differences: Topographies of Contemporary Architecture*. Cambridge, MA: MIT, 1997.

Solà-Morales, Ignasi de, "Liquid Architecture.", Davidson, Cynthia C. *Anyhow*. New York: Anyone, 1998.

Somol, Robert, and Sarah Whiting. "Notes Around the Doppler Effect and Other Moods of Modernism.", *Perspecta* Vol. 33, Mining Autonomy (2002): 72-77.

Spier, Steven. "Dancing and Drawing, Choreography and Architecture." *The Journal of Architecture* 10.4 (2005): 349-64.

Stuart Elden, Elizabeth Lebas, and Eleonore Kofman. *Henri Lefebvre: Key Writings*. New York: Continuum, 2003.

Tafuri, Manfredo. *Interpreting the Renaissance: Princes, Cities, Architects*. New Haven, Conn.: Yale UP, 2006.

Till, Jeremy. *Architecture Depends*. Cambridge, MA: MIT, 2009.

Tschumi, Bernard. *Architecture and Disjunction*. Cambridge, MA: MIT, 2001.

Vattimo, Gianni. "Metaphysics, Violence, Secularization.", Borradori, Giovanna. *Recoding Metaphysics: the New Italian Philosophy*. Evanston, IL: Northwestern UP, 1988.

Vattimo, Gianni. *The End of Modernity: Nihilism and Hermeneutics in Postmodern Culture*. Baltimore: Johns Hopkins UP, 1988.

Walker, Stephen. "Gordon Matta-Clark: Drawing on Architecture." *Grey Room* 18 (2005): 108-31.

Woolfe, Zachary. "Lincoln Center's 'striptease': It's the Architecture! | Capital New York." *Capital New York*. Web. 23 Nov. 2010. <<http://www.capitalnewyork.com/article/culture/2010/07/262024/lincoln-centers-striptease-its-architecture>>.

Zabala, Santiago, "Gianni Vattimo and Weak Philosophy.", Zabala, Santiago. *Weakening Philosophy: Essays in Honour of Gianni Vattimo*. Montréal: McGill-Queen's UP, 2007.