Giedion's Figural Conception of Urban Space-Time
& The Analysis of Le Corbusier's Modern Urbanisms

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ABSTRACT:

Sigfried Giedion's presentation of three figures to analyze urban space-time in history can be used in turn to understand often overlooked aspects of early modernist urban schemes, like Le Corbusier's Plan Voisin, the Pavilon de L'Esprit Nouveau, and the Contemporary City for Three Million Inhabitants. Giedion identifies a need for understanding the new scale of industrialized urban space-time with a synthetic frame of reference necessitating the movement and memory of a sentient viewer. This need had already been felt by avant-garde artists of the early twentieth century, with Cubist and Purist pictorial space presenting the viewer with a synthetic, simultaneous space by fracturing the picture plane and challenging the transparency of linear perspective. Recognizing that Le Corbusier utilized this synthetic viewing frame to produce his paintings and organize his buildings, exhibits and texts allows for the construction of an alternative history of Modernism that may be more useful to contemporary urban planners than the usual recourse to oversimplified caricatures of a history governed by the static frame.

CONFERENCE THEME: On Approaches
KEYWORDS: Le Corbusier, Giedion, urbanism, figure, invention

INTRODUCTION

In his lectures on modernism at Harvard University in 1938-39, Sigfried Giedion described historical conceptions of urban space and time using emblematic spatial arrangements (Giedion 1949). Medieval urban space-time was summed up by the leaning Asinelli and Garisenda towers in Bologna; Renaissance space-time found culmination in the nineteenth century through the perspectival spaces of Haussmann's boulevards cutting through Paris; and contemporary, modern developments in urban space-time could be previewed in Cubism and Rockefeller Center. Giedion used the space-time figures to uncover an imperative in contemporary urban planning to think at increasingly larger scales, a space-time necessitated by industrialization.

As an example of an alternative approach in architectural history research methods, Geidion's space-time figures of the historical urban subject can be used to analyze Le Corbusier's urbanisms. By looking at Le Corbusier's controversial publications on urban planning using the topical framework of Giedion's figures, we can find evidence of a non-perspectival, synthetic or collaged space of representation. This idiosyncratic manner of presenting urban space corresponds to Giedion's utilization of Cubist collage techniques to communicate what were still new possibilities for thinking about large scale developments, possibilities implied in the dynamic public spaces of Rockefeller Center and a new scale of space introduced to the city by the parkway. The spaces of industrial society, the scale and complexity of new transportation networks, are too vast to be communicated from a fixed point, a single view obtained by looking along a primary axis conveniently provided by the architect or planner. According to Giedion, the synthesis of heterogeneous and sometimes contradictory spatial experiences into the image of a larger system, be it a single modern building or the entire city, must take place in a synthetic frame constructed in the mind of each subject. An inventive agency is required to gain understanding of contemporary space-time.

The ingenious conceptual structure that Giedion used to communicate the new problems of the modern city was also used by the modernists whose work he studied and presented to the world. In attempting to solve the problems of the industrial city, the avant-gardes of the early twentieth century sought new methodologies when existing conceptual tools seemed to quickly become obsolete. Le Corbusier, as a prominent revolutionary artist and architect/urbanist is a good example

of the development of new space conceptions in art preceding corresponding developments in architecture and city planning. The dynamic frame of Cubist and Purist synthetic space was a key component of Le Corbusier's later urban methods. This can be seen from early representations of his urbanism, such as the *Plan Voisin* exhibited in 1924 as part of the *Pavillon de l'Esprit Nouveau* alongside a prototype housing unit, and later in publications like *Precisions* (Le Corbusier 1930), *When the Cathedrals were White*, (Le Corbusier 1937) and culminating in the massive tomb, the *Poem of the Right Angle* (Le Corbusier 1955). These works describe a trajectory that grows increasingly obscure, but more importantly, the format Le Corbusier chose for these works indicates aspects of the invention of a modern urbanism radically different from that presented in more famous works with very different, highly didactic formats. These didactic works include CIAM's *Athens Charter* (CIAM 1938; Le Corbusier 1973), and the plans and perspectival renderings of innumerable cities produced by Le Corbusier's studio.

This paper will first summarize Giedion's three figural frames and discuss their implications for modelling urbanity as an object of knowledge. Then, we will examine one of Le Corbusier's early format-experiments, the *Pavillon de l'Esprit Nouveau*, to show how the application of Giedion's figures can reveal new opportunities for understanding historical precedents, finding the thread of continuity for more obscure aspects of modern urbanism.

1. GIEDION'S THREE FIGURAL FRAMES

1.1. THE TOWERS OF BOLOGNA

The Asinelli and Garisenda towers in Bologna date from the early twelfth century, and eventually the city would have nearly 100 towers, with construction and modification reaching a fevered pitch by the end of the fourteenth century (Jones 1997). Exactly what significances Giedion invests these towers with is as obscure as the origins of the towers themselves, but he makes it clear that being able to view the interrelations of the two towers in space, leaning toward one another at the intersection of five streets leading to gates in the city's walls - a relationship easily comprehended from any number of stationary points in the city - indicates a manner of understanding the city in the time and space of a historical subject.

> [T]he leaning towers of the two noble families of Asinelli and Garisenda in Bologna … can be embraced at a single glance, in a single view. There is no uncertainty in the observer concerning their relation to each other (Giedion 1949, 641).

So, what does this figure tell us about medieval Bologna's space and time? It is indicative of what we might call a "clotting" of the space-time of the city. The many towers of Bologna date from the height of the Investiture Conflict that pitted groups of noblemen throughout the Holy Roman Empire against each other, siding either with the sovereign power of the Emperor or the Pope. In Northern Italy, local noblemen, merchants, or prominent families asserted their bids for local power amidst the chaotic alliances. The political, social and economic consolidation of Italian city-states into relatively independent, localized systems of governance was contemporary with the questions of sovereignty and right of rule and law implicated in the conflict. The particular form of urbanity that would eventually emerge as the northern Italian City-State by the fourteenth century, a form that is legible at the macro scale of the city and its surrounding lands, was fraught with violent clashes between clans within individual cities (Martines 1979; Hyde 1973).

The internal rivalries raging in cities like Bologna in the twelfth and thirteenth centuries produced an extremely divided urban environment, where it was common for people to live their entire lives rarely setting foot outside a single neighborhood populated by familial relations. This divided or "clotted" urban social sphere was pervasive and prolonged enough to produce detectable variations in spoken language, such as different accents, in the different neighborhoods of Bologna. Dante mentions these differences in speech, sometimes tied to an urban space only a few hundred meters in diameter (Martines 1979).

The towers of Bologna were used as spatial tools tying a clan to a particular space in the city, aiding in the ability to protect and defend the surrounding buildings from rival factions. Most frequently it seems, objects were thrown or dropped from the tops of the towers, easily injuring or killing

pedestrians on the open streets below. This activity was so common as to result in specific laws punishing anyone who dropped objects from urban towers (Martines 1979). The clan-space indicated by the towers was contingent on physical lines of gravitation and bodily occupation. The physical manifestation of a clan's dependency on the tower as a spatial-gravitational tool is exemplified by the unusual practice of building bridges and flyovers connecting various buildings within the family neighborhood compound directly to the tower. The urban space of the city-state in formation was dependent entirely on occupation via physical contact. Visual or measurable distances were irrelevant in this localized and haptic space. Each local system, every family clot, obtained global legibility through cohesion by physical proximity and a need for global validation at the scale of the City-State for protection against vying family systems. The city that produced the Asinelli and Garisenda towers had little use for the abstracted, homogeneous and infinite concept of space that would emerge during the Renaissance.

1.2. PERSPECTIVAL SPACE OF THE PARISIAN BOULEVARDS

For Giedion, the linear network of Haussmann's boulevards cutting through the dense fabric of the ancient city is a grafting of the abstract homogeneous and infinite space of Renaissance linear perspective onto the urban environment (Giedion 1949). Thus, the nineteenth century Haussmannization of Paris is a late expression of Renaissance space-time, brought to bear by a series of rulers on the clotted space-time of medieval urban neighborhoods.

When Haussmann was appointed to the position of Prefect of the Seine Department by Napoleon III in 1853, the work of making Medieval Paris correspond to the industrial age and the rule of the Empire had already begun. For Giedion, documenting the series of rulers who commissioned the changes of Paris in the nineteenth century was necessary to show the slow unfolding of power-relations indicated by each urban invention, stretching back at least to the developments of Louis XIV which introduced large-scale Baroque space to the city's environs. Under the Second Empire, Napoleon III would immediately begin attempts to systematize the extension of Renaissance space through the existing city. These early attempts were initially plagued by embarrassing failures in engineering and surveying, leading to Haussmann's appointment as a qualified planner who would support the Emperor's expensive plans.

The Haussmannization of Paris corresponds to the city's industrialization performed through perspectivization. The development of the boulevards began as a process of extension and connection of urban elements. First came the 1854 extension of the Rue de Rivoli to stretch from the Tuileries to the tangled mass of streets and buildings in front of the Hôtel de Ville. This dense neighborhood, which had previously been the starting point of various Parisian revolts, was replaced with the open space of the Place du Châtelet (Giedion 1949). In 1858, the wide, arrow-straight Boulevard Sébastopol was extended to connect the Île de la Cité to the Gare de l'Est, connecting the new administrative center in the middle of the city to the new railroad station on its north-eastern edge by a tree-lined, space bounded in the distance only by perspectival convergence. The Rue de Rivoli and the Boulevard Sébastopol, connecting to the Boulevard Saint-Michel on the south side of the Seine, intersect in the center of the city to form *"la grande croisée"*, effectively establishing a large-scale, linear and homogeneous access-space within the medieval city fabric of Paris.

Like the medieval, clotted space-time figured by the Asinelli & Garisenda towers, the space-time of the Boulevard requires only a static frame of reference for comprehension of the city. An individual placed anywhere within the monumental Boulevard-spaces of Paris can view a linear, occupiable space extended through the city, bounded only by the optical convergence created by the individual viewer as an entity occupying the space. That this perspectival figure is created only by literally carving or cutting through the densely clotted space of medieval Parisian neighborhoods makes it enough of a referent to encode various possible power-relations- the individual viewer need only occupy the boulevard-space, with movement along the perspectival network only confirming the relations of the urban system as visible from a single point.

1.3. THE PARKWAY AND THE SYNTHETIC FRAME

> The use of a new and larger scale in town planning which would coincide with the scale already being used in the parkway system is an imperative necessity for the salvation of the city. … It is closely connected with the space-time conception of our period (Giedion 1949, 633).

The new scale of development necessitated and facilitated by industrialization of the city renders the static frames of medieval clotted urban space or Renaissance perspectival space insufficient for contemporary urban comprehension. The examples that Giedion used to illustrate the change in the relationship between the perceiving subject and the large scale of the industrialized urban environment are the Parkway and Rockefeller Center. Meant to be occupied only within a moving automobile, and facilitating rapid movement through the city, the spatial system of the Parkway cannot be comprehended from any single point, and offers little comprehension of the surrounding environment to which it provides a means of access. Understanding how to navigate a city using the networks created to facilitate mechanized transportation- whether automobile or train, possibly plane- requires movement and memory, calling for the individual to organize, categorize and prioritize sensory information. No one image or spatial figure can be guaranteed to sum up the industrialized urban environment. A dynamic, synthetic frame of reference is necessary.

Artists were the first to find ways to cope with the alienation of their rapidly industrializing environment. The Cubists found some measure of expressive solace by breaking the single picture plane to depict spatio-temporal simultaneity. Soon, architects like Le Corbusier, who first participated in the development of the dynamic/synthetic frame in the realm of painting, were able to apply transparency and spatio-temporal simultaneity to the built environment. Giedion finds that contemporary, large-scale developments like Rockefeller Center utilize the dynamic frame in their approach to ordering the space of the city- Rockefeller's pinwheel configuration offers varied and sometimes contradictory spatial arrangements and hierarchies to the occupant- creating an urban space that is consistent with the space-time of industrial society.

> [N]othing of the essential character of an organism like Rockefeller Center is revealed in a view restricted to its central axis. It possesses symmetries which are senseless in reference to the aesthetic significance of the whole. It requires comprehension in space and time more closely analogous to what has been achieved in modern scientific research and in modern painting (Giedion 1949, 642).

2. EXPERIMENTS IN DYNAMIC FRAMING

2.1. PAVILLON DE L'ESPRIT NOUVEAU

Le Corbusier's *Pavillon de l'Esprit Nouveau* of 1924-5, like Rockefeller Center, was an experiment in synthetic space-time. Le Corbusier's deployment of the contents for this exhibit at the Paris *Exposition Internationale des Arts Décoratifs et Industriels Modernes* shows a self-conscious use of space in the format of the presentation. The exhibit's parti was composed of two distinct sections, a circular, drum-like space containing a presentation of *the Contemporary City for Three Million Inhabitants* and the *Plan Voisin* for the center of Paris, and a cubic volume comprising a single prototype dwelling for the context of the larger contemporary city (Benton, Louis, and Phaidon 2008). Moving back and forth between these two spaces required the occupant to construct a synthetic frame to contain memories of the exhibition materials within a single, comprehensible conceptual structure. This synthetic frame would hold a trans-scalar vision of modernism as a methodology for creating the individual dwellings, the buildings that contain them, and the city that would form their larger context.

Only focusing on the model and drawings of the *Plan Voisin* in the drum-volume of the *Pavillon* obscures the movement implied in the exhibit's *parti*, and thus hides the creative synthesis of spatial comprehension that such an exhibit includes. The frame that encompasses the modernity presented must be held in the mind of a moving viewer. This formula of ocular sensation combined with movement in space was mentioned numerous times by Le Corbusier in his writings, and it has been analyzed in various ways by historians and theorists, and is an integral component of the famous *promenade architecturale* (Jencks 2000). Le Corbusier utilized the *promenade architecturale* to dramatic effect in the *Maison La Roche Jeanneret* of 1925, the same year as the *Pavillon*. Is it much

of a stretch to see this spatial organizer in the contemporaneous exhibit, to see spatial movement as an information organizer that provided a context for discrete materials in various scales and formats?

The question that arises from observing the role of movement in the *Pavillon* is how are we to interpret Le Corbusier's urban forms? What are grids and functional zones, segregated modes of transportation, and repetitive super blocks when considered within the heteroclite, synthetic frame of the moving subject? For posterity, left only with publications, the dual character of the interpretable values presents a dilemma. Does one favour the didactic clarity of the perspectives and plans, the compartmented exposition of urbanity indicated by the *Athens Charter*, or does one's focus shift rather to the aberrant materials with fractured formats that show the author's desire to present urbanism with the variety and complexity with which cities are experienced and comprehended? In making a working value decision, one should recognize that the profound linkage between movement, organization and cognition would emerge in increasingly intense examples as Le Corbusier's career continued beyond the *Pavillon*. Presented with a dilemma offering alternatives of clarity of through reified concepts presented discursively and the complexity of interpreting the built environment, Corbu's publications show an obsession with the possibility of slipping between the dilemma's horns with consistent attempts to invent methods that conflate the didactic clarity of totalizing frames with the obscurities of image, movement, and space.

2.2. POST-*PAVILLON* EXPERIMENTS

In *Précisions*, Le Corbusier documented the contents of his 1929 South American lecture tour. To introduce and provide a context for the material in the lectures, Corbu utilized the format of the travel journal to present the aberrant cultural musings of "The American Prologue", where his first airplane flight became a topic generator, organizing adjacencies between disparate thoughts and observations (Le Corbusier 1930). He deemed the combination of flight and observation sufficient to organize the information in this short text. Several years later, Corbu used the dynamic frame induced by combining eyes that see and movement through space as an organizer of urban information obtained during his 1935 North American lecture tour, published as *When the Cathedrals Were White* (Le Corbusier 1937). The content of this book is decidedly urban, but nowhere to be found is the single, totalizing point of view of the urban plan, the static frame seen in the perspectives and plans so frequently culled from the *Œuvre Complète* (Le Corbusier & Jeanneret 1991). In 1924 when Le Corbusier wrote *Urbanisme*, he used Manhattan as an example of progressive urbanism- praised for its intensive and boldness, derided for its chaos (Le Corbusier 1924). But, after finally visiting Manhattan nearly a decade later, Corbu presented his thoughts of American cities in *Cathedrals* by foregoing didactic explication and analysis altogether. Instead, he presented American cities through the subjective events of a travel diary. Here, the format of the "American Prologue" is used for the *entire* work; crossing the George Washington Bridge, seeing Louis Armstrong play in a jazz club, encountering the statue of George Washington deep in the financial district, train rides through the suburbs- these experiences and the affective relations they gather, scattered thoughts they stir, become an urban analytical framework.

When the *Cathedrals Were White* is certainly unusual, but it can be considered as a companion publication linked with the *Athens Charter* (CIAM 1938) or *La Ville Radieuse* (Le Corbusier 1935) to form a set describing an urbanism that can encompass a great variety of material. Certainly, a great deal of conceptual work is required of the reader to construct a framework dynamic enough to cover the variations and contradictions contained in this set, and the synthetic frame constructed would be as much a product of the individual receiver as the original publications. But this individual, subjective agency is not fundamentally different from the requirements demanded of the viewer by the complex spaces of Le Corbusier's paintings, and the material considered is only as diverse as his architecture. Constructing a single frame explaining a continuous imperative of architectural invention was important for Corb-scholars whose work centered on producing discursive systems guiding value and interpretation (Jencks 2000; Tzonis 2001; Curtis 1986). Linking later, expressive works like the chapel at Ronchamp and the *Unité d'Habitation at Marseilles* with the early modern villas of the 1920's can obtain an image of Le Corbusier as an architect that is useful for applying historical precedents to the complex problems of contemporary architectural practice. Constructing

the synthetic frame that can include the idiosyncrasies of *Précisions*, *Cathedrals*, the *Pavillon*, as well as the iconic renderings of the *Ville Radieuse*, the *Plan Voisin*, and the obtuse tenets of the *Athens Charter*, could yield useful material for urban problem solving without necessarily being an apologist or revisionist by ignoring the obvious problems and contradictions of these works.

Culmination of the dynamic frame as an experimental format in Le Corbusier's work can be seen in his *Poem of the Right Angle* (Le Corbusier 1955). Here, the viewer is painfully aware that the simple diagram of the work, the rectilinear *iconostase*, is didactic but does not immediately reveal all of its secrets. The structure and interrelation of elements in the poem are multifarious and incredibly rich, yet Le Corbusier has no qualms in representing the general structure in a simple, gridded format. The motifs in the paintings indexed by each cell of the iconostase are ordered or linked by axis, adjacency, boustrophedon (serpentine movement) and three dimensional spiralling. This late work can offer interpreters a clue to envisioning grids and zones with a dynamic frame, as here rectilinear repetition is a foil or breading ground for variety and complexity, and not an attempt to reduce or eliminate heterogeneous conditions.

The *iconostase* reveals that Le Corbusier did not see the grid as a restrictive ordering device. Didactic clarity in Corbu's works always exists simultaneously with contradiction and variety. So, what history is told beyond the didactic plans and renderings with their totalizing frames and continuous, homogeneous spaces? The repetitive, rectilinear geometries of the different parts of Le Corbusier's city plans, whether dealing with housing or administrative zones, offer both didactic clarity of ordered unity and a great deal of variety to the occupant strolling along the meandering footpaths at the feet of the buildings. *The City for Three Million Inhabitants*, the *Radiant City*, the *Plan Voisin*, etc, would not look the same from the ground as they do from the air. Reading the content organized by simple rectilinear geometries in these designs in the same way that Corbu called on the reader to use the *iconostase* reveals opportunities for unexpected adjacencies and emergences within the rigorous logic of the plan.

3. CONCLUSION

3.1. PROLIFERATION OF FIGURES

Indicated in Giedion's three space-time figures is an attempt to found a new kind of historical analysis to establish meaningful relationships with modernism in architecture and an urbanism for industrialized society. Geidion's own later development of the figures into analytical categories- the "three space conceptions in architecture": architecture as space-radiating volumes; architecture as interior space; architecture as both volume and interior space (Giedion 1971), lost the evocative power of the original space-time figures as a theoretical organizer. Unlike his project to outline architecture's three space conceptions, Giedion's original three figures from the 1930's do not appear to be a complete inventory of space-time conditions. New figures can be conceived and added to the list to increase the inventory of existing or possible urban space-time configurations. Le Corbusier's series of works utilizing the dynamic frame of a prescient subject engaged in physical movement can be seen as attempts to develop new space-time figures for understanding contemporary urban conditions. While Giedion hazarded the parkway figure to describe the new scale of the industrialized city, Le Corbusier continued to produce new experimental figures, consistently enriching his spatial conceptions as the continued march of the twentieth century brought new conditions into confrontation with the existing stock of concepts used to understand them. Analyzing Le Corbusier's urbanisms using the concept of the space-time figure provides a research framework as dynamic as the inventive efforts of these modernist proposals.

From the discussion above, the *Pavillon de l'Esprit Nouveau* might be said to have a space-time figure of trans-scalar synthesis, with a nestling of solutions at various scales. This trans-scalar figure is similar to the relation of figures in Le Corbusier's contemporary Purist paintings, a multiple and sometimes contradictory space formed synthetically by the observer to encompass the material presented. The "American Prologue" of 1929-30 presents the figure of air-travel, an urban space-time that Corbu finds terrifying and fascinating. We should not confuse this figure with that of the bird's-eye-view or the celestial view, which has been a prevalent guide for formal urban developments around the

world for millennia. The prologue's figure is not hypothetical but physical, the moving view-point of a human eye positioned amongst the clouds. The tumult of rapidly changing natural conditions and a sense of the overwhelming scale and power of the natural world made the formal concerns of city planners seem futile, the tiny cities below dwarfed by the immensity of the Amazon. Corbu was overwhelmed by a geological and vegetal space-time during this first flight. Instead of reinforcing the static vision of a God positioned outside of earthly space and time, air-flight was an experience that led Corbu to muse over revolution, war, and radical change (Le Corbusier 1930), a fully historical time and material space, inevitably subjected to change.

Just as the flight-figure of the "American Prologue" supports alternative conceptual material than the figure of the idealized bird's-eye-view, analyzing the Athens Charter drafted by CIAM in 1933 using the framework of proliferating, experimental space-time figures yields surprising results. Perhaps the simplest figure to posit for the Charter is one of swathe-zoning, where a fully abstracted and homogenized logical space is allowed to assert a rigorous system with little influence from the perceiving subject. Time is a component of the swathe-figure only as a modulator of scale-proximities and adjacencies of zones are regulated by the 24-hour day and the speed of inhabitants' necessary movements as they go about their day. Thus, a trans-scalar adaptability is implicated in the swathe figure, recalling the diverse propositions of the *Pavillon de l'Esprit Nouveau*. Including time in the *Charter's* figure references a cognizance of users' needs that is lacking in many urban plans that were developed using the concept of swathe zoning.

When the Cathedrals Were White presents an urban space-time of affective events that Corbu had previously called "radiant moments" (Le Corbusier 1935; 1964, 129). As discussed above, *Cathedrals* is structured around a series of these radiant moments, fully subjective and embedded in the immediacy of urban experience and cognition. The unusual radiant-moment figure used to present the contemporary built environment of the U.S. explains the frustrating lack of exposition or sound argument in this publication. That this publication is not a total mistake on the part of the author, but is rather a component of an experimental series of experiments in urban representation and comprehension is supported by the appearance of the *Poem of the Right Angle* in 1955. An awesome and captivating work in its physical size and the syncretic nature of its contents, the *Poem* could be understood as a compendium of sorts, an index of space-time figuration, as understood late in the life of its creator.

Maybe it is merely the novelty of Giedion's figures that makes them compelling. But the brief account of urban space-time figures presented here is certainly an inquiry into the invention of Le Corbusier's urbanisms. The figural account is a nascent history, as was Herodotus' Inquiries into the origins of the Greco-Persian Wars of the 5th century BC, which although unusual at the time, would become a foundation for historical conventions (Walter 1992, 18). Traditional historical analysis blends subject and object, diachronic and synchronic analyses, word and image, idea and experience, but it does so with an apparatus of conceptual tools that has become habitual to the point of perceived transparency, appearing to be logical. The novelty of the figural history that Giedion proposed in the 1930's should not obfuscate its utility in conveying some of the difficult and forgotten stories in the development of an industrialized society that continues to change and challenge the urban subject.

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