LE CORBUSIER'S ATHENS CHARTER: ANALYSIS OF URBAN FUNCTIONALISM

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Abstract: This article presents a critique of *The Athens Charter* by Le Corbusier through the methodology and principles of the Austrian School of Economics. Within a praxeological framework, it examines the epistemological roots of rationalist or functionalist urbanism, its reliance on central planning and its attempt to replace the spontaneous order of the city with deliberate urban design. The paper analyzes the consequences of this constructivist vision in the configuration of urban models such as Brasília and Chandigarh, as well as in Le Corbusier's own projects and those of other architects of the modernist movement.

Keywords: "Athens Charter," "urbanism," "functionalism," "model," "city," "Le Corbusier," "Brasília," "Chandigarh," "Bauhaus."

I.
INTRODUCTION

In 1933, aboard the ship Patris II traveling from Marseille to Athens, a group of architects and urban planners, members of the International Congress of Modern Architecture (CIAM), drafted a document that would mark the evoluation and thinking of 20th-century urban planning: *The Athens Charter*. Its main author, Le Corbusier,[1] sought to codify the principles of the modern city in a kind of constitution or urban manifesto: a scientifically planned city, rational and functional in its organization and structure.

[1] Pseudonym used by Charles-Édouard Jeanneret (1887-1965) throughout his career

The text proposed dividing urban space into four basic functions—living, working, traveling, and recreation—separated by zones and regulated according to technical criteria of efficiency. The city should be a "machine for living"[2]. This was the understanding of the city as a technical organism, plannable and subject to laws of performance, circulation, and productivity. This paradigm permeated postwar urban thinking and crystallized in countless general plans, zoning laws, and public housing models.

To address the criticism of *the Athens Charter* and Le Corbusier's functionalist conception of urban planning from the Austrian methodology, we must first ask whether urban planning is a science that can be understood methodologically as a natural or social science or as an artistic discipline. The academic economic tradition has tended to apply methods typical of the natural sciences to ultimately human realities. An undue confidence in the applicability of mechanical models to complex social phenomena, "the experience with which the sciences of human action have to deal is always an experience of complex phenomena. No laboratory experiments can be performed with regard to human action... It is impossible to reform the sciences of human action according to the pattern of physics and the other natural sciences." (Mises, 1949/1998) p. 55[3].

This methodological principle is also defended by some schools of urban planning. Urban planner Jane Jacobs, who was highly critical of functionalist urban planning, for example, reached a similar conclusion when observing the errors of modern urban planning. "The theorists of conventional modern city planning have consistently mistaken cities as problems of simplicity and of disorganized complexity, and have tried to analyze and treat them thus. No doubt this imitation of the physical sciences was hardly conscious. It was probably derived, as the assumptions behind most thinking are, from the general floating fund of intellectual spores around at the time." [Jacobs, 1961] p. 435

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[2] *Une maison est une machine à vivre*. in *Vers une architecture,* (1923) One of the maxims of functionalist architecture, based on standardization criteria, developed by Le Corbusier, which he consistently extended to his entire vision of the city

[3] Ludwig von Mises, *Human Action: A Treatise on Economics* (New Haven: Yale University Press, 1949), p. 31.

A) **The methodology of architecture**

If we accept that urban planning belongs to the realm of physics and the natural sciences, the city could be designed artificially in an efficient manner and imposed through general quantitative models. If we do not accept this assumption, we must recognize that the city constitutes an emergent order, the result of countless individual decisions coordinated through institutions, customs, and market signals. This difference ultimately expresses two opposing views of knowledge: the city as a discovered order or as an imposed order. The *Athens Charter* and the urban planning of Le Corbusier and the modern or international movement embody the second view, which relies on the power of the urban planner and scientific methodology to replace individual action and the spontaneous order of cities.

Urban planners, often architects, have understood urban planning as a disciplinary area within architecture, which manifests itself clearly as a natural discipline, since architecture is matter, and as matter, subject to the laws and forces that govern matter. Gravitational force, which requires that every building be designed to withstand its own weight, as well as the loads acting on it. Electromagnetic force, which governs the molecular cohesion of materials and, therefore, their strength, malleability, elasticity, and conductivity. The strong nuclear force and, in the case of architecture, less obviously, the weak nuclear force, which are the forces confined within the atomic nucleus and which hold matter itself together. In this sense, architecture relies on the natural sciences, such as physics, chemistry, and geotechnics, to build in accordance with the three fundamental pillars of structures, which are stability, strength, and rigidity.

However, it would be naive to reduce architecture to just that. Architecture is also, and above all, a human response to human needs. Architects do not simply build stable volumes, but spaces for living, working, resting, praying, and trading. Architectural design is full of decisions that respond to human ends: the need for intimacy or openness, community or seclusion, beauty or functionality. In this sense, architecture also belongs to the realm of the social sciences. Finally, architecture is also one of the fine arts. This

is how the Greeks, Romans, Renaissance artists, and classical treatise writers understood it. There is no architecture without a search for beauty, without an attempt to harmonize form and function with meaning and proportion.

B) **The methodology of urban planning**

Based on this triple nature—physical, human, and symbolic—,[4] it becomes clear that architecture requires an interdisciplinary methodology. It must be understood as a social science endowed with an aesthetic vocation but subject to the material reality of physics and chemistry acting on matter. And yet, what is urban planning? If it is a disciplinary area of architecture, is it also a multi-methodological science? In order to assign an appropriate methodology to urban planning, we must ask ourselves about the essence of its object of study. "Urban planning" derives from the Latin urbs, urbe, which is a synonym for city. City comes from the Latin civĭtas, meaning "group of citizens," "citizenship," "city," and this derives from civis, citizen. In other words, city refers to the group of citizens, the political community, shared life, which takes place in a specific physical space.

Following Alain Bertaud, it is important to distinguish between what he considers to be the formal design of the city, the visible ensemble of streets, buildings, and parks that is the product of deliberate decisions, that is, the material ensemble, which is the object of study for architects, civil engineers, etc., but not for urban planners. On the other hand, *there* is Order *without Design*, which is the pattern of interactions that emerges from millions of individual decisions made by households and businesses in response to prices, opportunities, and constraints. The function of the urban planner must have "Order without Design" as its object of study. The city cannot be understood by ignoring the logic of human action and the spontaneous order that underlies its birth,

[4] Vitruvius summarizes these three fundamental, or multidisciplinary, principles of architecture: *firmitas* (firmness or solidity), *utilitas* (utility or functionality), and *venustas* (beauty).

evolution, and functioning. The question would be whether or not such formal design through urban planning is always capable of coming into conflict with spontaneous order in some way. However, it should not be confused that denying the above statement is equivalent to arguing that cities must necessarily be chaotic or unhealthy (which was what Le Corbusier criticized about urban planning, which he called "speculative" or "medieval"). In the words of Manuel Ayllón, "desirable urban planning would be one in which cities are free from planning that slows them down due to the bureaucracy it generates, makes them more expensive due to the loss of value it causes in scarce goods, standardizes them because its formula is repeated, modifying only its coefficients, and suffocates them because it is only capable of contemplating what it itself defends (...) (urban planning) must be done with plans that organize cities, but without plans that, in attempting to guarantee the happiness we dream of, constrain and harm us."

This distinction that Ayllon identifies between plan and blueprint is the difference that Le Corbusier and functionalist urban planners perhaps avoid, warning of the inevitable chaos to which the unplanned city is doomed. The plan is a technical support tool for the architect, a tool that describes a specific and limited physical intervention in the urban space, for example, the layout of a street, the location of a bridge, or the layout of a water network, without attempting to dictate how people should live, produce, or interact in that space. It is an auxiliary means at the service of ends discovered and freely pursued by individuals and communities. The plan, on the other hand, is a closed normative model. It does not merely provide means, but sets the ends in advance: it decides where and how people should live, what uses are legitimate for each area, what work or traffic flows are desirable and which are not. The former describes and facilitates, the latter models.

Similarly, Japanese urban planners make a distinction between *Machizukuri* (city building) and *Toshikeikaku* (urban planning) that is not found in Western academia. It is the realm of planning or *machizukuri* that, by adjusting the formal design through free contract or neighborhood decisions, addresses the real needs in each circumstance. In contrast, the *plan*, the option of imposing plans that seek to replace the order without design that emerges from

free interactions between citizens by coercive means, and furthermore, following Rothbard, we would say that, despite its justification, it is inefficient and does not "maximize" social welfare[5]. Any plan that exceeds the technical and coercive sphere violates the rule of unanimity, inevitably causing losses in well-being and social tensions.

As a social science, attempts at technical, quantitative, or statistical modeling are epistemologically inadequate or ineffective, or at least incomplete for fully understanding human action, to the point of modeling and planning the complex and dynamic social reality that constitutes the city. Joaquín Azpitarte will develop in his work why the urban economy cannot be addressed except through the methodology of praxeology and methodological individualism, since "the formation and evolution of the city cannot be understood without analyzing the individual and the use he or she makes of the territorial resources at his or her disposal (...) the search for profit opportunities and the need to resolve conflicts arising from coexistence shape a social order that is impossible to plan."

Knowledge of the city is scattered and tacit, impossible to concentrate for a central planning body. When this fact is ignored, urban interventions tend to distort adaptation processes and make economic calculation impossible. Land and housing become unnecessarily expensive, damaging or eliminating the invisible networks of norms, trust, and cooperation that cannot be replaced by formal rules (Ikeda S., 2004). Public choosers act with incomplete knowledge and often with ideological or social biases, and it is this lack of omniscience that prevents planners from knowing all the information that all agents possess, generating unforeseen results that are often contrary to the original policy objectives ( ).

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[5] Extrapolating Rothbard's logic in "Toward a Reconstruction of Utility and Welfare Economics" On *Freedom and Free Enterprise: Essays in Honor of Ludwig von Mises*, ed. Mary Sennholz (Princeton, NJ: Van Nostrand, 1956), pp. 224-262. Following the unanimity rule. According to his perspective, social welfare can only be said to increase if no one is worse off and at least one person is better off. Any public planning that modifies land use, zoning, or access to infrastructure will inevitably benefit some and harm others. Therefore, the unanimity rule would never be fulfilled unless decisions about the use of the city were made exclusively through voluntary exchanges between owners.

II.
TOWARDS *THE CHARTER OF ATHENS*

It was not at the CIAM congresses, nor was it the urban planners of the Modern Movement who inaugurated the rationalist or functionalist theories of central planning applied to urbanism. We can find various historical precedents, but their philosophical and scientific origins date back to rationalism and the Enlightenment ideal of reason as a universal guiding principle, placing trust in human reason over geometry and technology, applied, among other disciplines, to urban planning.

Rather than a scientific or technical ideal, it was an ideal of beauty and proportion that led to the creation of the well-known *Hippodamian* grid layout in the 5th century BC (orthogonal grids arranged in a grid pattern) by the mathematician and architect Hippodamus of Miletus. A similar layout was found in Babylon and, to a lesser extent, in the slave cities of Egypt. It was also used in the Roman Empire, but the layout was practically forgotten in the Middle Ages, when cities lacked planning and layouts evolved organically, adapting to the terrain and the needs of existing urban centers. Interest in reviving geometric layouts was rekindled during the Renaissance. Examples include Thomas More in Utopia, Campanella in The City of the Sun, and Bacon in The New Atlantis, all of which were proposals for orderly, functional, perfectly geometric cities. This trend also influenced the later idealized designs of some Baroque and Enlightenment Neoclassical urban planners (such as L'Enfant in Washington or the founding plans of colonial cities).

It was with the Enlightenment, and unlike the geometric models of the Renaissance or classical models, that urban plans of universal validity were formulated, with a claim not only to order and proportion, but also to the reorganization of space and the layout of the city based on standardized and centralized urban metrics so that the city could be calculated and built, rebuilt, or reformed according to universal scientific principles, which would also act as political and social tools. "Then the first conscious urban planning schemes appeared, ideal models that sought to extend rational order to the entire city and even to the world, trusting that the right design would produce a perfect human environment"

(Ayllón, 2004) The enlightened theoretical legacy was gradually applied to urban planning by governments and planners in the 18th and 19th centuries, and their use of urban geometry was not only an aesthetic resource but also an instrument of social control. It is argued that the first comprehensive urban plans were Baron Haussmann's reforms after the Commune uprising of 1871, which sought not to beautify the city but directly to impose order by preventing revolt and social conflict.

The academic world of modern urban planning draws on the scientific and technical developments of the late 19th and early 20th centuries, as well as the flourishing of intellectual currents, on the one hand, Marxist, and on the other, nationalist or German idealism. These currents were closely linked to the various avant-garde movements in architecture, which proposed the emergence of utopian-technocratic movements in urban planning that, embracing these idealisms, sought to project the perfect utopian city. With different starting points, but in all cases, cities that had to be designed by experts (from scratch if necessary) and optimized thanks to technology, statistics, and science. There was an abundance of models and projects for the "ideal city" by great minds, architects, and urban planners convinced that, with the advent of the machine, they could solve urban ills (overcrowding, traffic, unsanitary conditions, inequalities, injustices) through comprehensive design. Architects such as Neufert, Hilberseimer, and van Eesteren, the latter apparently being the greatest influence on *the Athens Charter*,[6] had an urban vision based on clearly distributed functions and absolute zoning.

The central figure and catalyst of this movement was Le Corbusier, urban planner and architect. One of the leading exponents of modern architecture (founder of functionalism and architectural brutalism), he sought to formulate a universal urban model based on functional rationalization and technical standardization, radically geometric and mathematized with "The Modulor."

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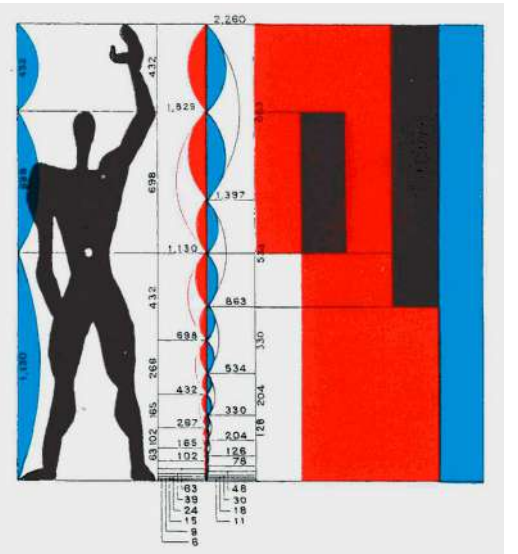
[6] Van Eesteren was president of CIAM from 1930 to 1947 and also collaborated with Le Corbusier on the development of the charter. His model and his book *Towards a Collective Building* served as an influence for Le Corbusier's city models and *for the Charter of Athens*

ILLUSTRATION 1.
LE CORBUSIER, "LE MODULOR (SÉRIES BLEUE ET ROUGE),"
IN LE MODULOR, BOULOGNE, ÉDITIONS DE L'ARCHITECTURE
D'AUJOURD'HUI, 1950



Although known as one of the most important modern architects, he was also one of the most important urban planners, disciplines that are difficult to separate. Curiously, his city models rarely included operational plans or concrete implementation projects, but rather abstract drawings that functioned as functional typological schemes of universal application,[7] designed to be replicable in any geographical or cultural context[8]. A universalist or

[7] Le Corbusier. In *Propos d'urbanisme* (Barcelona: Poseidon, 1980 [orig. *Propos d'urbanisme*, Paris: G. Crès, 1946]). He develops his model of the vertical garden city without a single plan or technical representation. The same is true in *La Ville Radieuse* (Paris: Vincent Fréal, 1935) and in *Urbanisme* (Paris: G. Crès, 1925), where he develops schematic models of the city, the "Contemporary City" and the "Radiant City," presented through abstract diagrams and conceptual perspectives, intended for application anywhere in the world.

[8] Le Corbusier identified himself as anti-regionalist; any architectural element that was not purely functional was ornamentation and therefore preferably disposable, so

internationalist conception where urban space becomes a system of scientific and statistical method whose elements are susceptible to reconfiguration with the aim of achieving functional optimality, analogous to Pareto optimality within the logic of general equilibrium. Unlike analogous Baroque or Enlightenment models, there is not even a search for aesthetic or beautiful order. In fact, the reader will find no mention of beauty in *the Charter of Athens*, not even from a mathematical perspective of harmonic geometry. It sought a "functional and optimal" reconfiguration, although fundamentally, as the reader will see, idealistic and autocratic in the way in which one should live, recreate, work, and travel.[9]

The text studied, *the Charter of Athens*, was the theoretical outcome of the Fourth International Congress of Modern Architecture (CIAM) in 1933. CIAM was a series of meetings and forums held between 1928 and 1959 that brought together the leading architects, urban planners, and construction planners of the modern movement,[10] such as Le Corbusier, Gropius, May, Hannes Meyer, and Giedion. The most important and influential architects of the time also participated, such as Niemeyer, Alvar Aalto, Richard Neutra, and Mies Van der Rohe (although the latter was critical of CIAM also dealing with urban issues[11]). The congresses aspired to become spaces for debate for the formulation of theories in search of the improvement and transformation of society through urban planning and architecture, attempting to break away from historical or regional traditions to base themselves solely on functional and scientific principles. At the fourth congress, what Le Corbusier would publish a decade later as *the Charter of Athens* was

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architecture had to be universal, just as physics and mathematics are. *"Architecture suffocates in usage. Styles are a lie."*

[9] The four functions of urban planning in *the Athens Charter.*

[10] When talking about CIAM, one immediately thinks of the Bauhaus school of architecture in Weimar. Most of the members of CIAM belonged to the school, such as Walter Gropius, Van Eesteren, Hannes Meyer, etc., bringing to CIAM the functionalist, rationalist, and avant-garde spirit that had characterized the Bauhaus.

[11] Several members apart from Mies were reluctant to address urban planning at conferences. Another example is Erich Mendelsohn, for whom urban planning was *"a complex issue,"* since *"the city does not develop simply from the economy and the means of production, but also from the lives of human beings born close to one another."* Mumford, E. (2007). *The CIAM discourse on urban planning*

drafted. Presented as the systematization of the principles of modern urban planning, it identified what should be the four primary functions of the city: living, working, recreation, and circulation. These functions were to be organized through strict zoning. That is, the normative division of cities into single-function areas, with the consequent exclusive assignment of uses to each zone. And although the text was written to defend the scientific and technical basis of urban planning, the document does not constitute or follow any urban planning methodology per se. It lacks any analytical or instrumental section that would allow it to be applied under its own standards, and rather than offering operational procedures or criteria for planning, *the Charter of Athens* is closer to a programmatic and ideological manifesto.

III.
THE ATHENS CHARTER

The Athens Charter consists of 95 numbered statements that aim to synthesize the guiding principles of modern urban planning developed by the members of CIAM, conceived as universal guidelines applicable to the organization of the city. Le Corbusier accompanies the established points with his own comments, interpreting or completing them. The text consists of a first contextual part, with a series of introductory points. A second part, consisting of five chapters, four for each of what he considers to be the functions of the city, and a fifth chapter for the historical legacy and architectural cultural heritage. Finally, a third part with conclusions and other final considerations. Some of the points are irrelevant to this work, and their conclusions or critiques end up being redundant, so only those whose content is of greater conceptual, ideological, or practical interest to the subject of study have been selected.

> "2. Economic, social, and political values are juxtaposed with the psychological and physiological attributes of the human being, raising problems of the relations between the individual and the community. Life can only expand to the extent that accord is reached between these two opposing forces: the individual and the community."

[12]Two "contradictory" principles: the individual and the collective. In his explanation, Le Corbusier argues that the individual alone is weak; in a group, he has security and prosperity. Certainly, social cooperation is a pillar of human life. Voluntary cooperation and community life allow us to overcome the precariousness of isolation, and well-understood self-interest leads t, where each person, seeking their own benefit, involuntarily contributes to the prosperity of others. Even at this point, Le Corbusier comments, "A plan is well conceived when it allows fruitful cooperation while making maximum provision for individual liberty, for the effulgence of the individual within the framework of civic obligation." The comment on this point may seem liberal, were it not for the opening statement, where the point seems to allude to an acceptance of the collective as a subject independent of the individual. However, when understood correctly, individual goals and collective well-being tend to harmonize naturally.

The following introductory points accept that cities are subject to constant change, and that constant change tends to lead to chaos. They mainly criticize industrial chaos, which produced unsanitary conditions, inequality, and pollution in cities. Certainly, the industrial revolution profoundly altered settlement patterns and displaced a huge amount of the population from the countryside to the city, but, as economic and social evidence showed, the Industrial Revolution produced an unprecedented increase in living standards. For example, in England, life expectancy at birth rose from around 35 years in the 17th and 18th centuries to over 50 years at the beginning of the 20th century (Office for National Statistics, 2022). There were also improvements in literacy (Vincent, 2019) and access to cheaper and more nutritious food (Harris, 2016). In this case, *the Athens Charter* confuses correlation (between industrialization and initial overcrowding) with direct causality, and does not distinguish between temporary transitional effects and long-term trends. Indeed, the early decades

[12] As Mises explains, "the fundamental facts that brought about cooperation, society, and civilization and transformed the animal man into a human being are the facts that work performed under the division of labor is more productive than isolated work and that man's reason is capable of recognizing this truth." (Mises L. v., 1949) *p. 144*

of industrialization saw a structural imbalance in urban markets, especially in the housing market. The rapid flow of migration from the countryside to industrial cities generated an abrupt increase in demand that could not be met by sufficient supply in the short term. This initial imbalance led to episodes of overcrowding, rising prices, and unsanitary conditions in working-class neighborhoods. Some intellectuals, such as Engels, interpreted the social division of early industrialization as a permanent urban disorder of capitalism. (Engels, 1845/2009). But in reality, these tensions were temporary characteristics of a broader adjustment process: as housing supply and urban infrastructure expanded, relative housing prices tended to decline significantly, reflecting a sustained improvement in residential access and urban living standards.

1) **Habitar**

> "9. The population is too dense within the historic nuclei of cities, as it is in certain belts of nineteenth-century industrial expansion—reaching as many as four hundred and even six hundred inhabitants per acre."

This point, and some of the following points in *the Athens Charter,* are based on a neo-Malthusian assumption (the population tends to grow geometrically while resources only grow arithmetically, which would inevitably lead to crises of overpopulation and scarcity) but applied to urban planning, establishing that there is a fixed "optimal" density, beyond which urban life inevitably deteriorates into unsanitary conditions and overcrowding. Le Corbusier sets this threshold in his comments at around 250–300 inhabitants per hectare as the maximum permissible density and considers that exceeding it would lead to "slums" and "permanent unrest." Maximum or optimal densities tend to be determined quantitatively in many current urban models and urban planning legislation for neighborhoods and streets. Plato already suggested an ideal size for the polis, which he set at 5,040 citizens (based on an idea of harmonious mathematical divisibility) (Plato, c. 360 B.C. / 2003) That number is currently exceeded by many not-so-large

towns in Spain. Le Corbusier's standard has also been exceeded by many cities in America and China, without this necessarily implying a lower standard of living for their citizens. The approach of optimal density falls into the trap of static analysis of territory and resources, similar to that denounced by Huerta de Soto in contemporary economics when he contrasts neoclassical static efficiency with dynamic efficiency, characteristic of an open process of discovery and continuous adjustment.

This urban approach has also been empirically challenged by recent urban research. (Castells-Quintana, 2017) demonstrating that the negative effects of urban concentration do not depend on density itself, but on insufficient infrastructure. Complementarily, (Henderson, J. V., Storeygard, A., & Weil, D. N., 2020) demonstrate that the negative relationship between density and per capita income only appears when corrected for the quality of the territory and the historical moment of development, not being a universal law of overpopulation, but a contingent result of the gap between population growth and productivity expansion.

Malthusian theories applied to urban planning omit the fact that technical knowledge grows cumulatively. Construction techniques for vertical growth, sanitation, water treatment, elevated roads, online markets, etc., arise from market incentives where, thanks to the market price system, if a resource or land begins to become scarce, its price rises, encouraging the search for new sources or substitutes to obtain economic benefit. On the other hand, population growth linked to the division of labor and specialization increases the economic productivity of cities, and larger cities are often accompanied by an increase in wealth, as the capacity for horizontal and vertical division of knowledge increases exponentially. Likewise, in a city with uneven density at the natural level that its infrastructure equates to, there are variations in housing prices, displacing demand, and organically, density tends to establish itself optimally in a spontaneous manner.

> "12. Structures intended for habitation are spread out across the face of the city, at variance with the requirements of public health."

> "15. This biased allotment of habitation is sanctioned by custom and by the supposedly justified provisions of municipal administrations, namely, zoning resolutions."

Zoning, a fundamental principle of urban planning, positively establishes the use of each area, excluding all other possible uses and blocking the city's adaptive capacity. Joaquín Azpitarte warns, in his book (Azpitarte, 2017), that zoning replaces cooperation and negotiation between individuals with obedience to an arbitrary rule which, by ignoring specific circumstances, produces undesirable effects. The rigidity of zoning prevents the urban fabric from evolving organically and efficiently. In theory, Le Corbusier presented zoning as an instrument of functionality, but multiple empirical studies show that restrictive land use practices generate regulatory rigidity and raise housing prices by limiting supply (Song, 2025) (Glaeser & Gyourko, 2003) Rigid schemes, by crystallizing the preferences of a specific era over time, become obsolete in the face of any significant social, economic, or technological change. As we will analyze by studying the application of *the Athens Charter* in Chandigarh and Brasilia, the cure ends up being more harmful than the disease.

> "20. The suburbs are laid out without any plan and without a normal connection to the city."
>
> "21. Attempts have been made to incorporate the suburbs into the administrative system."
>
> "22. The suburbs are often mere aggregations of shacks hardly worth the trouble of maintaining."

Le Corbusier describes suburbs as "chaotic and miserable areas that threaten the harmony of the planned city." Le Corbusier concludes that "The suburb is an urbanistic folly, scattered across the entire globe and carried to its extreme consequences in America. It constitutes one of the greatest evils of the century." He proposes preventing their emergence through absolute administrative control of the surrounding land: "To ensure the city the means for a harmonious development, the Administration must take responsibility for

the management of the land surrounding the city before the suburbs spring up." However, neither Le Corbusier himself managed to prevent their emergence in Chandigarh, nor did the most orthodox followers of his principles in Brasilia, where the favelas grew outside the planned areas. In reality, suburbanization has historically been a spontaneous phenomenon in the face of rigid city legislation (this summary is based on (Siegan, 1972) although we will be able to observe this when we study the cases mentioned). In the United States, the 19th-century *streetcar* or *trolley suburbs* that sprang up around electric tram lines connecting residential neighborhoods with the city center, and which were considered marginal areas, have now evolved, and the suburb has become the main form of housing for Americans, with 52% of households identifying as suburban. The difference is that currently 73% of citizens prefer to live in suburbs, towns, or rural areas, compared to only 27% who would choose the city (Pew Research Center, 2018).

Le Corbusier's indiscriminate condemnation of the suburb and the modern movement perhaps hides a fear of the city that cannot, and does not want to, be controlled, and this dimension of social control, beyond functionality, is revealed in the comment on the point "The abode of an unsettled population enmeshed in numerous afflictions, the suburb is a culture medium of revolt." Perhaps the goal of urban planning was not ultimately only hygienic or functional. Since Haussmann's reforms in Paris after the Commune, where the quest to prevent barricades and revolutions through urban planning was justified as modifications for health and traffic separation, planned urbanism, even when presented as a neutral technique, has revealed itself to be a political tool aimed at guaranteeing order and preventing the autonomy of space and its inhabitants, thereby preventing revolt against the established power.

2) **Recreation**

The section on "recreation" broadly states that urban planning must guarantee nearby open spaces for physical and moral health, maintaining a fair proportion between built volumes and green

areas as a formula for habitability. It classifies free time as daily, weekly, and annual, and calls for green reserves: around the home (daily use), in the region (weekly use), and in the country (vacation use). Land for weekly leisure is often poorly connected, so the regional plan must provide for adequate mass transportation.

In the debate on the provision of urban parks, conventional economics tends to classify them as public goods because of their supposed non-exclusion and non-rivalry: anyone could enjoy their views or facilities without paying for them, and their use would not necessarily reduce the enjoyment of others. This view argues that the market would therefore not provide parks in sufficient quantity or quality, thus justifying their provision by the state, usually through tax funding. This is one of the so-called market failures. Even Milton Friedman, and much of the Chicago School, have partly accepted this reasoning, arguing that in the case of urban parks there are "neighborhood effects" that would make it difficult to exclude those who obtain indirect benefits, which, according to Friedman, would justify public intervention in their provision, at least at the local level.[13]

From the perspective of property rights and business function theory, it is argued that all goods are excludable to the extent that private ownership is established over them and contractual mechanisms are developed for their use. Fences, entrances, memberships, or management as a club asset. Within this framework, urban or rural parks could be financed through user fees, private sponsorship, commercial concessions, or voluntary contributions, avoiding coercive financing via taxes. There are several reasons why this system might be preferable to state provision. One criticism of public concessions comes from Murray Rothbard, who warns that the "neighborhood effects" argument is a slippery slope: if it is accepted that any external benefit justifies state intervention, there is no objective criterion to stop its expansion to any human activity that generates positive externalities. Thus, if a park as a public recreational good justifies public provision, the same could be said of amusement parks, zoos, shopping malls, concerts,

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[13] Friedman, M. (1962). *Capitalism and freedom*. Chicago, IL: University of Chicago Press, pp. 30-32.

music, or any other experience that produces a diffuse benefit. This absence of limits reveals a certain logical fragility in this almost unanimously accepted position. It is necessary to maintain principled consistency in order to avoid falling into fallacies. Not to mention the obvious problem of the "tragedy of the commons": what is common to a very large number of people receives less care than what belongs to each individual.

3) **Work**

Points 41 to 50 of *the Athens Charter* address the third urban function, work. They propose a strict separation between productive and residential areas, pre-established distances, and the planned layout of industries, workshops, and business centers, separated by green areas. This approach corresponds to a model typical of the 20th-century industrial city, based on the centralization of work and commuter mobility. This paradigm is now very obsolete and outdated, even for a systemic and methodologically functionalist critique. In most European cities, with economies dominated by the service sector and tertiary activities, rigid zoning is particularly unproductive, being perhaps only accepted in mainstream urban planning for heavy or polluting industries. Current urban codes (with nuances) tend to allow mixed uses between residential, commercial, and tertiary, which favor functional proximity and reduce unnecessary travel and rigidity.

Free land use promotes a more flexible urban fabric, capable of absorbing technological and labor changes that continuously transform location and mobility patterns, which cannot be anticipated through planning. It is impossible to predict these processes through rigid plans. In this regard, José Miguel Fernández Güell accurately summarizes the error: "In short, *the Charter of Athens* presented a functionalist model that disregarded the complexity of historical urban phenomena and reduced the modern city to a logical scheme controlled by technology (...) The modern movement developed a model of the city that we can now describe as reductionist and mechanistic with regard to urban complexity. Understood as a functional system, the city was precisely defined,

and there was an obsessive search for the homogeneity of its parts and a logical, quasi-mathematical urban order. Consequently, this model had no room for the sociocultural diversity of its people or the unpredictable emergence of new functions" (Fernández Güell, 1997).

4) **Transport**

From points 53 to 56, Le Corbusier warns that the streets inherited from the medieval layout are now narrow and inadequate for new modes of transport, and concludes that modernity requires a carefully designed program that allows for everything necessary to regulate traffic flow and adapt to the new reality of the urban morphology of the automobile and speed. In his diagnosis, he overlooks the obvious problem of technological transition (Ikeda, 2004). Each innovation in transportation gradually alters the conditions of use of the city. Ikeda demonstrates that allowing the process of free and gradual adaptation is what makes change efficient and dynamic. The transition from horse to tram, or from tram to car, never happens suddenly, but incrementally. Users, merchants, and residents adjust their behaviors and locations based on new costs and benefits, and the city absorbs these transformations through millions of individual decisions. When technological conditions change, the city becomes trapped in obsolete infrastructure, financed at enormous public cost and difficult to reverse. Legislation, being slower than innovation, impedes resilience and the ability to correct mistakes.

> "59. The whole of city and regional traffic circulation must be closely analyzed on the basis of accurate statistics—an exercise that will reveal the traffic channels and their flow capacities."

From the epistemology of the Austrian school, extrapolated to urban planning, excessive reliance on aggregate data constitutes an epistemological limitation and a problem of methodological validity. Statistics are always abstract and static, useful as complementary instruments of analysis, but incapable of capturing all the

local, tacit, and contextual knowledge that guides individual decisions. r traffic patterns are the result of thousands of daily, changing, and adaptive choices. As Jane Jacobs criticized in *The Death and Life of Great American Cities*:

> "This conception of the city as a collection of separate file drawers, in effect, was suited very well by Le Corbusier's Radiant City vision, (...) his scheme assumed the statistical reordering of a system of disorganized complexity, solvable mathematically; his towers in the park were a celebration, in art, of the potency of statistics and the triumph of the mathematical average" (Jacobs, 1961)

According to Jacobs, Le Corbusier, in his model of the Radiant City (which we will study in the next chapter), confused the city with a problem typical of the natural sciences, as if it could be solved by means of averages and probabilistic calculations. The result was a dehumanized vision in which citizens are reduced to "grains of sand" that can be treated by mathematical averages, and in which any dysfunction can be corrected "by opening and filling a new file drawer." Reducing the complexity of human action in each individual (or what Jacobs called the "urban ballet") to numerical averages is tantamount to ignoring all the practical information that individuals discover, transform, and use in their daily lives. The attempt to convert orderly complexity into a "problem of simplicity" is, in itself, a form of constructivism that may not be the most efficient or ethical in urban planning.

Many urban planners have criticized this radical mathematization. Robert Goodman, for example, shows how the language of science and technology became an excuse to shift political conflict to a supposedly neutral terrain, an appeal to the "scientific method" that did not arise from technical neutrality, but from the interests of economic and political elites as a mechanism to ensure order, protect their investments, and control the population from rebelling or forming revolutions against the established order. Planners presented new methods for urban planning under the rhetoric of health, efficiency, and "general welfare." The urban planner, says Goodman, donned the cloak of science, concealing the fact that behind every zoning decision or every urban analysis model and

system lay specific interests of power. Zoning was a legal device to guarantee the monopolistic business granted by the states of construction and housing. The invocation of the "general welfare" served to legitimize policies that benefited a few under the guise of scientific neutrality. (Goodman, 1972)

Heritage

"Architectural assets must be protected," point 65, "if they are the expression of a former culture and if they respond to a universal interest." Complete 66. And in his comments, Le Corbusier remarks, "In the case where one is confronted with structures repeated in numerous examples, some will be preserved as documents and the others will be demolished; in other cases, only the portion that constitutes a memorial or a real asset can be separated from the rest, which will be serviceably modified."

It may seem paradoxical that the Charter devotes several points to the preservation of historical heritage, when Le Corbusier, in his projection of the Voisin plan for Paris, proposed the demolition of much of the historic center of Paris. Perhaps not so contradictory, since for Le Corbusier, historic Paris represented nothing more than isolated cases of a dysfunctional and backward city, and therefore its protection did not serve the common interest and the state had the legitimacy to expropriate it and order its demolition. In point 67, he argues that a building cannot be considered historical heritage if its "preservation does not entail the sacrifice of keeping people in unhealthy conditions." And as Le Corbusier comments, "By no means can any narrow-minded cult of the past bring about a disregard for the rules of social justice." Under this justification, practically any historical or religious property or building could be considered inadequate for protection, and its expropriation would be justified, legitimizing its destruction, reinterpretation, or demolition under the arbitrariness of what is considered social justice.

Historical evidence, at least in the case of Spain, has shown how the main attacks on the historical heritage of cities' architecture have occurred at times when property was most unprotected.

Even today, most of the buildings that are generally recognized as having the greatest historical value are, for the m, privately owned, belonging to the Church. However, they are significantly fewer in number than the buildings that existed prior to the confiscations of the 19th century. Those properties that ceased to be under ecclesiastical ownership were the ones that were most quickly demolished, transformed, or, due to lack of adequate maintenance, ended up in ruins. The monastery of San Francisco el Grande, for example, where the monks were expelled, was used for military purposes and there was an unsuccessful attempt to convert the basilica into a national pantheon. The monastery was eventually demolished and only the church survived, restored after Alfonso XIII returned it to the Franciscans. The convent of San Felipe del Real was demolished in 1838 after the confiscation to build homes and shops. The monastery of San Pedro de Arlanza was left in ruins, and its sculptures, capitals, and altarpiece were sold. The monastery of San Juan, the monastery of Piedra in Zaragoza, the monastery of La Merced, and many other examples that, if we were to list them all, would fill several pages. The justifications given for these confiscations, in the name of the "common good" or "social justice," are identical and analogous to those of Le Corbusier in point 67, already cited. And today, despite the fact that many of these buildings, churches, and palaces are owned by the Church or other private entities. National Heritage, declaring them Assets of Cultural or National Interest, places them under the administration of the State, which, far from protecting them effectively, legally prevents renovations and repairs and even imposes severe restrictions on care or basic maintenance work, even if their legitimate owners could and would like to carry them out.

Joaquín Azpitarte sets out a series of points clarifying that the fact that the State grants itself the power to administer assets that it has classified as protected assets is inefficient from an economic point of view. When the State declares a property protected, it lacks a real calculation mechanism to determine whether the benefits of that protection outweigh its costs. This leads to the preservation of buildings whose value does not justify the high opportunity or maintenance costs, and vice versa. Secondly, there is a distortion of incentives, where protection often condemns

owners to inefficient use of their assets, frequently leading to problems of functional obsolescence. Thirdly, urban scarcity and paralysis. When a high percentage of properties remain untouchable, the city loses the flexibility to renew or grow. Overly protected urban centers run the risk of becoming obsolete**.** Only the owner can properly decide what to preserve and to what extent. Those who wish to preserve a building should acquire it or finance its preservation voluntarily, without coercion. When the building passes into the hands of those who sincerely wish to preserve it, the owner voluntarily assumes the costs and can assess whether one type of protection or another is appropriate because there will be a real price involved, similar to the way patronage worked during the Middle Ages, which allowed for the preservation of many artistic and architectural works that we still have today.

Final section of the letter

Le Corbusier comments: "The pre-eminence of private initiatives, motivated by self-interest and by the lure of profit, is at the root of this deplorable state of affairs (...) Housing and factories were constructed, roads laid out, waterways and railroads cut and graded, everything multiplied in haste and in a climate of individual violence that left no room for any preconceived plan or premeditation." He attributes urban chaos to the predominance of private initiative, guided by profit and self-interest. He blames private profit for the disorder and seeks to replace it with the arbitrariness of a central planner. Apart from the obvious authoritarian dangers of this thinking (it should not be forgotten that Le Corbusier was known to be close to fascism and the Vichy regime, sympathetic to National Socialist ideology, and close to Stalin's Soviet regime[14]), blaming private profit for urban disorder is therefore tantamount to confusing complexity and economic calculation with chaos,

[14] However extravagant, exaggerated, or contradictory these statements may sound, they have been proven true. To verify these statements, see: Xavier de Jarcy, *Le Corbusier: un fascisme français* (Paris: Albin Michel, 2015); see also Marc Perelman, *Le Corbusier, une froide vision du monde* (Paris: Michalon Éditeur, 2015).

paradoxically, it is the very cities that Le Corbusier denounced as chaotic (those with a medieval layout where constructive freedom and free use of land predominated) that evolved with a morphological and functional richness that we still admire today for their organic balance and urban prosperity. Such as London, Venice, Florence, Osaka, Madrid, and so many others.

> "73. The ruthless violence of private interests provokes a disastrous upset in the balance between the thrust of economic forces on the one hand and the weakness of administrative control and the powerlessness of social solidarity on the other."

In his comments, Le Corbusier states that the only way out is the enactment of "new legislation for the city," a strong regulatory framework emanating from the administrative authority that imposes the "indispensable regulations for the protection of human well-being and dignity." He tries to reinforce the need for a city planner through the dialectic of confrontation

> "85. It is a matter of the most urgent necessity that every city draw up its program and enact the laws that will enable it to be carried out."

Thus, as urged in point 94, "The urgency of regulating the disposal of all usable ground by legal means in order to balance the vital needs of the individual in complete harmony with collective needs." And, to conclude the Athens Charter, point 95, which is only one sentence: "Private interest will be subordinated to the collective interest."

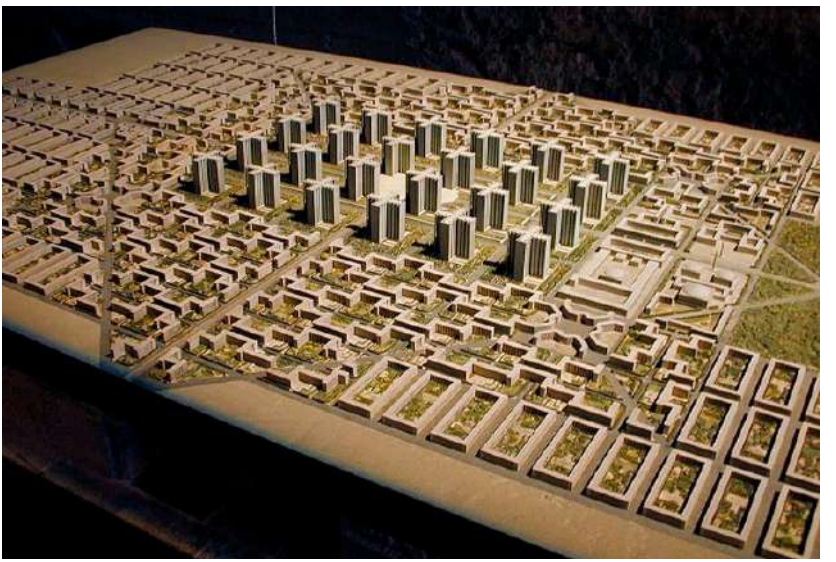
IV.
MODELS AND APPLICATIONS

Model: The Radiant City

La *Ville Radieuse* was the ultimate representation of the principles that would be enshrined in *the Athens Charter* a year later. The

model was originally designed by Le Corbusier for Moscow, but was later presented to the French authorities as the Plan Voisin, which would be an adaptation of this original model to Paris, although it was ultimately rejected. It proposed the demolition of the historic center of Paris, which it considered moribund and inefficient, in order to impose the new urban order. The *La Ville Radieuse* plan divides the metropolis into longitudinal strips with exclusive uses, arranged in strict zoning with eight functional zones: main residential, hotels and embassies, business center, light industry, heavy industry, satellite cities, and train station and airport.

ILLUSTRATION 2.
LE CORBUSIER, LA VILLE RADIEUSE (MODEL), C. 1930–1935.
© FONDATION LE CORBUSIER / ADAGP



The resulting layout is that of a linear city stratified into strict functional zoning, seeking to ensure that each urban activity takes place in the optimal environment where each element

occupies its logical place and nothing hinders circulation or public health, overcoming the inhumane mix of old cities that found themselves in a chaotic overlap of housing alongside shops, offices, and factories.

In the model, the housing units are arranged according to the "cell-dwelling" concept, which constitutes the biological and social core of the model's urban planning (and, one could say, of Corbusier's architecture in general), grouping them into "housing units" of an efficient size, inspired by the Existenzminimum[15]. From this cell, the other functions will then be articulated: work and recreation, in a predetermined spatial relationship. It is the understanding of the ideal city as a uniform and modular system, with rooms, dwellings, and families governed by the same parameters, the same measurements, "efficiently sized housing units." and these housing units, in homogeneous, functional buildings with free facades, on stilts, with continuous windows, open floor plans, and garden terraces (Le Corbusier's five points of architecture, which are reflected in his Unité d'Habitation building in Nantes-Rezé). Self-managed buildings, where all functions are fulfilled: education, health, consumption, leisure. Each Housing Unit (Unité d'habitation) is a large multi-family residential block, conceived as a "vertical village." For Le Corbusier, the division of housing by families (single-family homes, whether terraced, detached, etc.) is a mistake of the past, and the city should replace family housing with collective blocks that function as a whole. "That house called a family home will never be worthy of such a title, but it will plunge society into the universal wastefulness of garden cities. (...) It does not deserve its title because the family is diluted over the course of twenty years. We must admit it: this family home we are talking about does not last. And soon it becomes a fearsome interurban waste product" (Le Corbusier, 1980, p. 80).

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[15] The Existenzminimum (minimum living standard) was a concept developed mainly at the second CIAM, dedicated to the Wohnung für das Existenzminimum ("housing for the minimum living standard"). This concept was developed by German architect and urban planner Ernst May, a founding member of CIAM, who was also the urban planner for the city of Magnitogorsk in the USSR and a pioneer of Soviet urban planning and architecture during the Nikita Khrushchev era.

UNITÉ D'HABITATION DE NANTES-REZÉ,
LE CORBUSIER IMAGE: LAURENT ETOURNEAU

Model: The Vertical City

The Hochhausstadt or Vertical City was an urban model developed by the functionalist architect of the modern movement Ludwig Hilberseimer, who was a professor at the Bauhaus from 1929 to 1933. He conducted urban planning studies on the concentration of density in cities, which he interpreted as one of the great evils of cities, and wanted to develop a universal planning system to allow for homogeneity of density, where he presented his model, inspired mainly by that of Le Corbusier's contemporary city.

Presented for Berlin, the layout was radically orthogonal and symmetrical, with repetitive superblocks. It consisted of a total of 120 homogeneous blocks in a grid (12 x 10), but which, in a modular fashion, could be expanded in both the longitudinal and transverse directions. The blocks were elongated prisms (≈ 600 m × 100 m) placed in parallel. Unlike the Radiant City, which was divided longitudinally along the main axis, the vertical city was divided vertically within the same buildings (with the exception of polluting industries), and the zones were separated by floor, with a

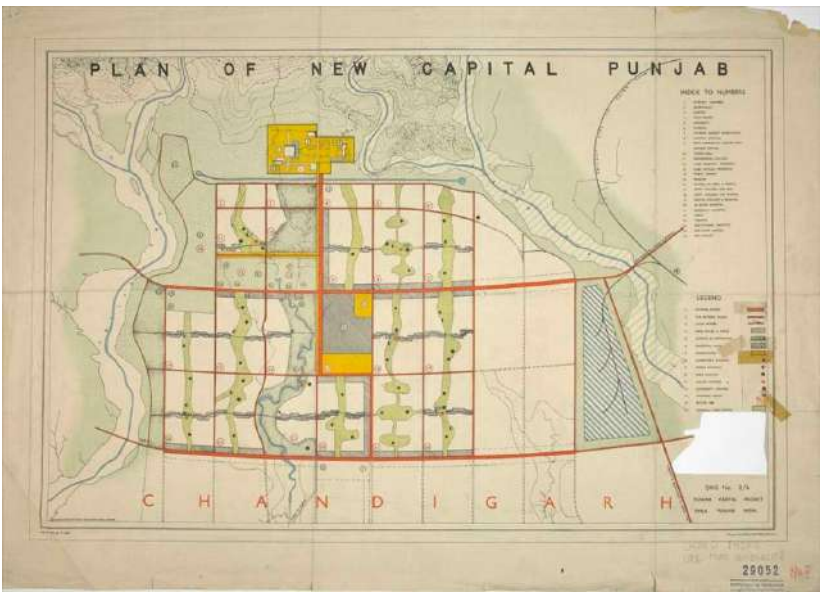
functional section stratified by a vertical stacking of functions. Each block is like a "self-sufficient cell": people live, work, and consume there. There is no need for streets, neighborhoods, or squares. By eliminating any place where an unregulated crowd could gather, privacy is practically abolished.

ILLUSTRATION 3.
"HIGHRISE CITY (HOCHHAUSSTADT): PERSPECTIVE VIEW: NORTH–SOUTH STREET" (1924). ART INSTITUTE OF CHICAGO

Chandigarh

Chandigarh in India, a city designed by Le Corbusier in 1951 as the new capital of Indian Punjab, directly applied the principles of the Charter. Punjab. The new city was to be a symbol of a modern, rational, and secular India, a rebirth after being a British colony. It is not surprising to discover that when Le Corbusier was asked to move to India to get to know the terrain and the area firsthand, he replied, "Your capital can be built right here; we, at 35 Rue de Sevres, are perfectly capable of finding the solution to the problem." He did not need to, because urban planning, being a technological machine, does not understand regions, lifestyles, or culture, only densities, climate, and geography. He finally agreed to spend eight weeks a year there while working on the project.

ILLUSTRATION 4.
SCHEMATIC PLAN OF CHANDIGARH



He conceived the project as a grid design based on two straight axes. The basic unit of planning is the sector, a rectangle measuring approximately 800 × 1200 meters. The idea was that each sector could function autonomously, avoiding the indiscriminate mixing of uses. With clearly defined sectors, connected by major roads, with green barriers between them to prevent urban continuity. Following strict functional zoning. The monumental administrative district, with the Capitol in the north (as the head of the city in Le Corbusier's metaphor), the Assembly, High Court, and Secretariat in the center (as the heart). All these bureaucratic buildings were designed by r Le Corbusier himself. However, the social reality of Chandigarh never lived up to the utopian hopes placed in it. In order to preserve the original layout, the city has had to impose strict controls. An effort to maintain the original plan by freezing the city in time has only served to distance it further from the dynamic reality of the surrounding India.

Residential zoning and density control through height restrictions have led to highly inefficient land use, coupled with green belt areas that act as boundaries and limits to new construction. Housing prices in the city skyrocketed, creating a severe shortage of supply, which meant that many families had to camp outside the city from the 1950s onwards, where *slums* and informal settlements appeared on the outskirts. Chandigarh was designed for a limited number of inhabitants. The actual growth in these areas far exceeded that threshold, causing suburban sprawl, congestion, and overburdened services. Strict zoning has led to great inefficiency in the flow of the city, with roads becoming saturated and major traffic jams occurring, which are even worse at the southern entrance to the city (where *slums* have formed, absorbing a large volume of traffic that was never anticipated in the original plan).

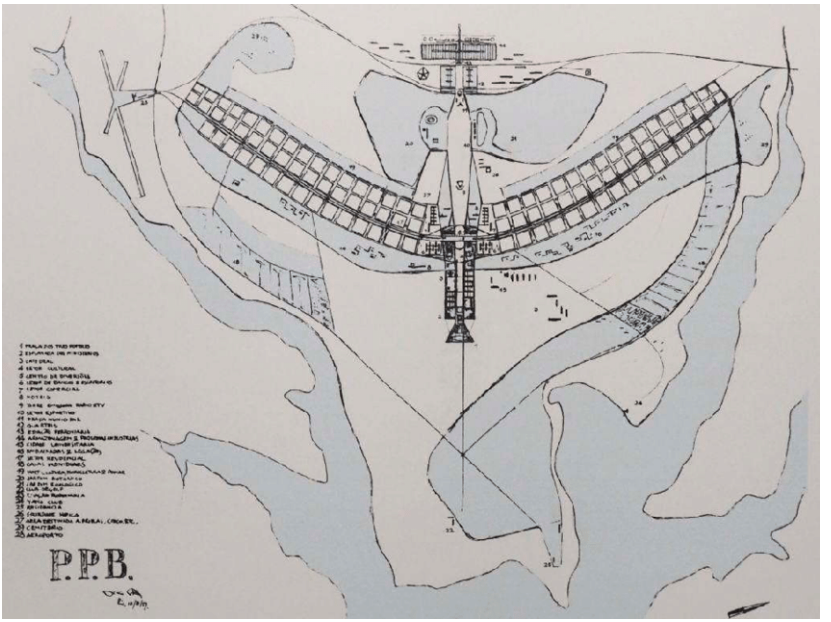
On the other hand, the zoning plan was largely ignored by residents. Sector 17, intended for commerce, has become a large center without urban life. The commercial district was designed by Le Corbusier as a rather Europeanized center of commerce, ill-suited to Indian customs. It was poorly understood by the population of Punjab, who preferred to resort to traditional markets in residential neighborhoods. In short, the urban planning disaster showed that real life tends to overwhelm the plan. Wherever a perfect and controlled city is imagined, informal dynamics, cultural complexities, and spontaneous adjustments will inevitably arise.

Brasilia

Brasilia was inaugurated in 1960 as the new capital of Brazil. The idea of moving the capital inland was already included in the 1891 Constitution, but it gained momentum under President Juscelino Kubitschek, who wanted to found a capital that would symbolize Brazil's modern future, reflecting the desire to break with the urban chaos of the old capital (Rio de Janeiro) and its favelas. The design of the new city emerged from a national competition won by urban planner Lúcio Costa, who presented the famous Plano

Piloto (Pilot Plan): "The city will be designed according to all the rules imposed by the Charter of Athens."[16]

ILLUSTRATION 5.
ORIGINAL PLAN OF BRASILIA, LÚCIO COSTA (1957),
WITH ITS AIRPLANE-SHAPED LAYOUT



The Plano Piloto took the shape of an airplane, hence its name, with two axes intersecting at an angle: a Monumental Axis for the seats of the three branches of government and civic functions, and a curved Residential Axis (the "wings" of the airplane) with residential neighborhoods. Monumental buildings and large open spaces are aligned along the "fuselage" of the airplane (the Monumental Axis); the "cabin" houses the *Three Powers Plaza* with the government headquarters. The longitudinal "wings" house the

[16] Costa, L. (1957*). Relatório do Plano Piloto de Brasília* [Pilot Plan Report for Brasília].

residential superblocks, interspersed with extensive green areas. The entire capital was planned from scratch with a deliberately orderly layout. The imposing morphology proved to be quite inflexible, and as in Chandigarh, the city found it difficult to adapt to new circumstances or simply to circumstances not foreseen by Costa and Niemeyer's design, and trying to solve them would mean confronting the original design. An illustrative case of an unforeseen circumstance that led to the elimination of one of the functions that the city sought (speed). A city designed expressly as a fast-moving and efficient car city, with unplanned population growth, had to introduce traffic lights, secondary roads, and pedestrian walkways, which meant the loss of rapid mobility. In a longitudinal rather than radial city, this change led to severe inefficiency in transportation and traffic flows.

Its status as an administrative capital made Brasilia highly dependent on the public sector, unlike cities that grew around industrial or commercial activities. Alain Bertaud described it as "an extreme case of a planned monocentric city designed to function as an administrative capital. Where employment is highly concentrated in the central area, mostly in government and related services." In fact, about 66% of wages in the Federal District come from public administration (federal and local), more than double the national average. This structure prevented productive diversification and the formation of agglomeration economies. In the absence of a broad and competitive business ecosystem, the city failed to develop a self-sustaining economic fabric. Combined with the problem of low land use efficiency, which disperses the population, urban maintenance is excessively costly. The city maintains an extensive network of infrastructure, roads, transportation, water, and sewage for a very low effective density. Brasilia, being more of a political than an economic project, is structurally dependent on public spending and lacks the foundations that sustain economic efficiency.

Adjustments between housing supply and demand have been very weak due to rigid adherence to the urban plan, where artificially restricted formal supply never met the real demand for housing and land. In the absence of a sufficiently flexible market, both because of the urban design itself, which makes it impossible, and

because of the rigid regulations of the housing market, a mismatch in the real estate market has been perpetuated. Much of the demand for housing had to be met by the formation of large shanty towns and favelas on the outskirts, in a parallel black market for plots of land, where an extensive network of clandestine sales of plots to illegal intermediaries of these settlements and land developed. Ironically, the strict planning that was intended to eliminate private speculation generated another form of speculation, now clandestine and disorderly. This is one of the most criticizable aspects, in that it gave rise to precisely what the original planning sought to avoid, and which also happened in Chandigarh.

Brasilia, designed from scratch as a residential area and housing complex, inspired by Le Corbusier's cell housing, with dimensions and qualities that were considered scientifically to be the "minimum decent housing," it turned out that, due to these housing imbalances, they were not accessible to lower-income workers and employees, and settlements began to form around Brasilia for those who could not afford housing in the city. This led to the emergence of *Cidade Livre* (now Núcleo Bandeirante), a spontaneous settlement approximately 12 km from the Plano Piloto. Unlike Chandigarh, where these suburbs were treated more leniently, in Brazil in 1958, the families of Cidade Livre were forcibly dismantled and relocated to *Taguatinga*, the first planned *"satellite municipality,"* 25 km from Brasilia, with the excuse of providing them with better housing conditions. However, by separating them twice as far from their workplaces, many were forced to leave, forming new settlements in other places closer to the city, but even more marginalized and impoverished, since, with legislation that could force them to leave again at any moment, the temporary preference for saving and maintaining these homes was very high. This led to the emergence of settlements such as Gama (1960), Paranoá (1960), Guará (1967), and Ceilândia (1971), Sol Nascente (1999), the latter now being the largest favela area in Brazil, surpassing the favelas of Rio and exceeding the Plano Piloto itself in terms of population, with serious health problems due to severely deficient sewage and health systems. In other words, all these settlements and favelas were in fact the inevitable result of adapting and humanizing human reality as far as possible to the rigid plan of a

project that aims to understand the reality of human action but is incapable of doing so.

IV.
CONCLUSIONS

The analysis of *the Athens Charter* and the urban models and projects it inspired or was inspired by has shown that the city cannot be sustained as a centralized engineering project, nor can it be reduced to a "machine à habiter" with predetermined functions. On the contrary, the city is a complex, dynamic, and evolving social order, born of human action and the dispersed knowledge of millions of individuals, generation after generation. Attempts to impose a centralized design have, in practice, generated high social, economic, and psychological costs: rigid cities, housing price imbalances, informal settlements, and a loss of community vitality.

In short, the analysis concludes that the urban planning of Le Corbusier and *the Athens Charter* attempted to replace the spontaneous order guided by voluntary cooperation and the price system with urban planning, making the mistake of confusing the city with a technical object. Their legacy must be critically reviewed, not only from a moral point of view, although that would be enough, but also from a technically, economically, and scientifically rigorous point of view. The challenge for contemporary urban planning is to abandon the illusion of absolute control and recognize that true urban progress depends on the decentralized creativity of individuals and their organic evolution. As Robert Goodman says:

> "In the game of experts, reform must be described in the language of experts. It is not enough to say that it is simply immoral to make people live within a classification system; it must be opposed in scientific terms. One must be able to demonstrate what happens to rats that are made to live in this way so that rejecting this same way of life for humans is reasonable." (Goodman, 1977, p. 151).

Conflict of interest

The author declares that he has no conflict of interest.

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