

# Edmund N. Bacon as a teacher. Review of a didactic exercise carried out in the course «History and Theory of Urban Design» at the University of Pennsylvania

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*Edmund N. Bacon como professor. Revisão de um exercício didático no contexto do curso « History and Theory of Urban Design » na Univesidade de Pensilvânia*

*Edmund N. Bacon como profesor. Revisión de un ejercicio didáctico en el marco del curso «History and Theory of Urban Design» en la Universidad de Pensilvania*

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## Keywords:

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University de Pennsylvania.

## Palavras-chave:

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## Abstract

The article examines the teaching practice of Edmund Bacon under the theoretical postulates exposed in his fundamental work «Design of Cities». The postulates expressed in the work are reviewed, linked to internal forces, the system of simultaneous movements and the awareness of space as an experience. An unpublished record (documentary, graphic and oral) of a didactic experience developed in the course "History and Theory of Urban Design" taught by Bacon at the University of Pennsylvania is then reviewed. Subsequently, the theoretical precepts of Design of cities are contrasted with the didactic-teaching practice of the course, verifiable in the records offered. From the findings, it is shown how Baconian theory and didactics distance themselves from the modern conception of urbanism of the 20th century, realizing, rather, a proximity to empirical, perceptual and experiential currents, perhaps closer to the avant-gardes and phenomenology.

## Resumo

O artigo analisa a pratica de ensino de Edmund Bacon sob os postulados teóricos apresentados em sua obra fundamental «*Design of Cities*». Os princípios expostos na obra, relacionados as forças internas, ao sistema de movimentos simultâneos e à consciência do espaço como experiência, são revisados. Em seguida, é realizada uma análise de um registro inédito (documental, gráfico e oral) de uma experiência didática desenvolvida no curso «*History and Theory of Urban Design*» ministrado por Bacon na Universidades de Pensilvânia. Os preceitos teóricos de «*Design of Cities*» são então contrastados com a pratica didático-docente do curso, verificável nos registros fornecidos. A partir das descobertas, é demonstrado que a teoria e a didática de Bacon se distanciam da concepção moderna do urbanismo de século XX, evidenciando, em vez disso, uma afinidade com tendências empíricas, perceptivas e experienciais, possivelmente mais próximas das vanguardas e da fenomenologia arquitetônica.

## Palabras-chave:

Urbanismo,  
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## Resumen

El artículo examina la práctica docente de Edmund Bacon bajo los postulados teóricos expuestos en su obra fundamental «*Design of Cities*». Se repasan los postulados vertidos en la obra, ligados a las fuerzas internas, el sistema de movimientos simultáneos y la consciencia del espacio como experiencia. Se revisa luego un registro (documental, gráfico y oral) inédito de una experiencia didáctica desarrollada en el curso «*History and Theory of Urban Design*» impartido por Bacon, en la Universidad de Pensilvania. Posteriormente, se contrastan los preceptos teóricos de *Design of cities*, con la práctica didático-docente del curso, verificable en los registros ofrecidos. Desde los hallazgos, se muestra como teoría y didáctica baconiana se distancian de la concepción moderna del urbanismo del siglo XX, dando cuenta, más bien, de una proximidad a corrientes empíricas, perceptuales y experienciales, quizá más próximas a las vanguardias y la fenomenología.

## Introduction

Although the 40s and early 50s of the 20th century were characterized by increasing design flaws and damage to the city, in urban reconstruction and renewal processes; from the inauguration of the «**Rockefeller Foundation Research Program**» pioneering works were developed in theory, criticism and history of urban design and planning. Indeed, the publications financed by the Program began with Kevin Lynch's «**The Image of the City**» (1960) and ended with Edmund Bacon's «**Design of Cities**» (1967) (Laurence, 2006, p. 166); both seminal works, not only for American urbanism, but for twentieth-century urban theory and criticism.

The figure of Catalan architect Josep Luis Sert will be decisive during the period, regarding the transfer of modern ideals from the International Congresses of Modern Architecture (CIAM) and the group GATEPAC (Group of Catalan Architects for Contemporary Architecture) to American soil. Sert's ideals initially in the line with the discourse of European rational urbanism, will adapt to a new reality and the transformations inherent in the new territory. As the Dean of Harvard, he will later become a critic of rationalist urbanism, and in the context, there are convergences with Bacon's perspective when it comes to preserving pedestrian spaces and the need for a design that responds to the complexity of urban development dominated by automobiles.

Born in Pennsylvania, Edmund Norwood Bacon studied architecture at «**Cornell University**» (1927-32), complementing his training at the «**Cranbrook Academy of Art**»; where he was a disciple of the architect Eliel Saarinen. In 1949 Bacon became the director of the «**Philadelphia Housing Association**» and executive director of the «**Philadelphia City Planning Commission**» (1949-70). His work in public administration had a national and international impact, having repercussions on scientific journals, the press and magazines. Bacon's work placed Philadelphia among the most unique American cities, after New York, in terms of urban focus. Additionally, Bacon taught at the «**Master of Architecture**» at the «**University of Pennsylvania**» (Clow, 2000).

For its part, the book «**Design of Cities**» summarizes Bacon's main ideas about the city. Illustrating his conception of urban space, a historical look that helps reveal spatial relationships and its circumstances. The book also depicts his experience as a Philadelphia planner, making explicit through diagrams and perspectival sections his

urban theories as well as a strongly experiential approach to urban space. Bacon's work is linked to the diagrams and drawings of Paul Klee, who abstracts links between space and movement. Bacon will adapt this in line with the city.

Thus, he conceives the so-called «**system of simultaneous movements**», a spatial structure on which to think about the city and architecture. Bacon points out that community participation is essential in good urban planning, a place where its inhabitants can express themselves and have an exchange of experiences. In this way, both his performance as an urban planner, manager, activist and teacher, as well as his work, have had a great impact on urban planning, to this day.

However, Bacon's teaching experience is less well known than his theoretical work and even less so than his work as Executive Director of the Planning Commission of the City of Philadelphia. Indeed, the links between his theory, work and teaching are still very little explored. We could then ask ourselves: Are the Baconian postulates expressed in *Design of Cities* and Bacon's professional work in Philadelphia, in his didactics and teaching practice, verifiable? Are there other influences on his precepts? What part do drawing and representation have in the construction of the urban experience for Bacon? In this context, this paper aims to examine Edmund Bacon's teaching practice, in the light of the theoretical postulates exposed in the book «*Design of Cities*». The achievement of this purpose is envisaged through the following specific objectives:

1. Review of Bacon's theoretical postulates expressed in «*Design of Cities*»
2. Review of the unpublished record (documentary, graphic, oral) of the didactic experience developed in the course «History and Theory of Urban Design».
3. Comparative discussion of the revised theoretical postulates, with Bacon's didactic-teaching practice, verifiable in the unpublished record offered.

## Methodology

As a first methodological question, the theoretical postulates present in Bacon's work are reviewed. As a second thing, the unpublished record (documentary, graphic and oral) of various didactic experiences developed in the course «History and Theory of Urban Design» taught by Bacon in 1981 at the University of Pennsylvania is

reviewed. Third, the theoretical postulates expressed in *Design of Cities* are discussed and compared with the didactic-teaching practice of the course, verifiable in the three unpublished records offered. Finally, from these findings, the nexus between Baconian theory and didactics is discussed. A possible proximity of Bacon with other theoretical-practical currents is also examined; also reviewing the role that both drawing and representation have for Bacon, in the experiential construction of the urban.

## Revisiting «Design of Cities»

Bacon's theoretical postulates present in his book can be synthesized in three major key articulators: «**The inner forces**», «**The Simultaneous movement systems**» and «**The Awareness of space as experience**».

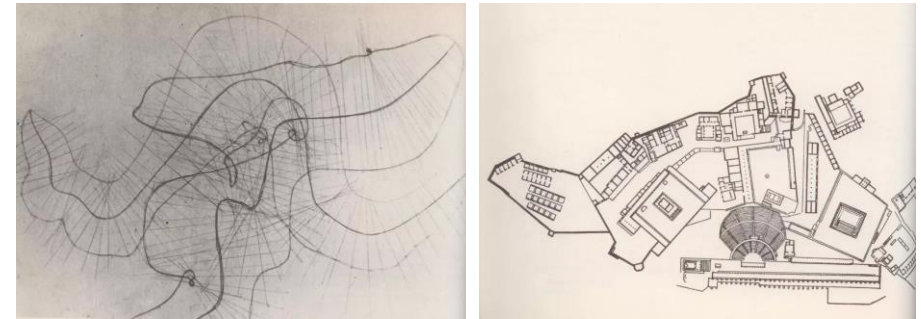
### The inner forces

This articulator refers to the internal lines of force that operate in a graphic, spatial or urban composition, considered as universal principles present in the great works of the past as well as today. These internal lines show the movements from space-time paths, the nodal points, the characteristics of each region, revealing its internal compositional logic (Fig. 1).



**Figure 1.** Drawing by S. Zafiropoulos (Bacon's student) illustrates «The inner forces». Includes elements such as rhythm, symbols, volume, time, hegemony, etc. (*Design of Cities*, p. 63)

Bacon invites us, for example, to understand the Acropolis of Athens from a complex system of territorial movement, revealed through the *Panathenaic Procession*. The latter marks an evolution in time and space, through its journey. This ritual began outside the city, passed through *Daphnae*, passed the *Dipylon* gate, continued obliquely through the *Agora*, and worked its way up to the Acropolis. This processional course synthesized the political, economic and commercial life of the city. From it, the evolution of the city, the Acropolis enclave and its relationship with nature again are understood. We can understand this ritual and its system of movements through the city, as a formal materialization of memory, as a central organization of forces that unify route, history, city and architecture (Fig. 2 and 3).



**Figures 2 and 3.** Explanatory drawings. The inner forces at work. Left: Acropolis of Pergamon in Asia Minor. Right: Drawing by Paul Klee. (*Design of Cities*, p. 63)

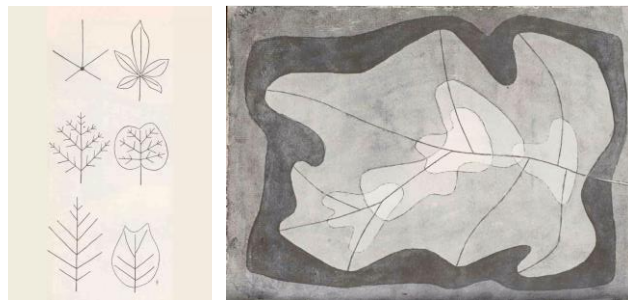
### The Simultaneous movement system

The **Simultaneous movement system** refers to the specificity of roads and/or paths through which the inhabitants of a city move and transport. It establishes three important notions: the relationship between mass and space, the continuity of experience, and simultaneous continuity. One of the most frequent problems in urban design is the adjustment of the various speeds of movement with the way of perceiving the space from the car to the pedestrian. These postulates suggest an order from which to face this complex system, organizing the city and architecture (Fig. 4).



**Figure 4.** Section on Market Street. Adaptation of various movement systems. (Design of Cities, pp. 290-291)

In his book, Bacon quotes the painter Paul Klee on several occasions, observing, from the perspective of the artist and his work, some characteristics of the city. He starts from diagrams that abstract spatial relations and movement relations, concluding that the urban work of the city of Philadelphia should consider **Simultaneous movement system** in three similar dimensions. Bacon compares the growth of the city with that of a tree, where the possibility of growth is established according to the order necessary for the organism to develop (Fig. 5 and 6). The concept of motion systems would provide a design structure that helps architects think from the scale of the city to understand and develop their individual works.

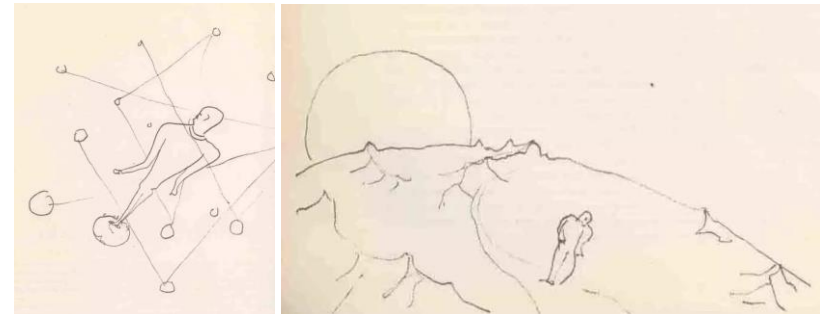


**Figures 5 and 6.** Design showing the parallel between an organic structural form and the movement system of the city. Left: Diagram based on the work of Paul Klee. Right: Klee's watercolor on the structural movement of energy within the city. (Bacon, 1976, pág.128).

### The Awareness of space as experience.

The third articulator, the **Awareness of space as experience**, refers to the essence of design, which is determined by the relationship between mass and space, but going beyond the relationship of brain activity and referring to the immersion of being in space. This relationship is present from the very beginning of the human being. Man learns and develops from his ability to perceive space (Fig. 7 and 8). Bacon says:

«Behind all is the regular rhythm of the steps, the change of the measurements of the space from the earliest civilizations. There is a muscular effort to traverse the court, for example, or the exhilaration caused by the prospect of going up and down a staircase. Only through this endless walk can the designer absorb into his being the true scale of urban space» (Bacon, 1976, p. 20).



**Figures 7 and 8.** Both drawings illustrate Bacon's ideas on Awareness of space as experience. (Design of Cities, p. 14)

Thus, the great challenge of city design is not to create facades or spaces in the city, but to create a simultaneous experience that adds all the elements of the place; engulfing the viewer as it traverses the city. An experience that attracts the viewer's interest and enables an intensified experience between architecture, urban spaces and users. Bacon compares it to music, where sounds and melodies are interspersed in time, in the same way, fragments of buildings are interconnected in the city by lapses of time and space.

Through these three articulators, Bacon alludes to an immersive, enriched and multiple urban experience, in which various simultaneous movement systems interact in a complex way; a vivid experience that is articulated by various internal and simultaneous lines of force. The concept of simultaneous movement within the city establish the location, speed and destination of each mode of transportation, ensuring smooth and uninterrupted circulation without crossing. This primarily enable the emancipation of pedestrians in the city center. Additionally, Bacon introduces phenomenological considerations by paying close attention to the body in spaces, fostering a heightened awareness of visual-perceptual phenomena in relation to human and their surroundings.

### Experiential practices in the didactics of Bacon

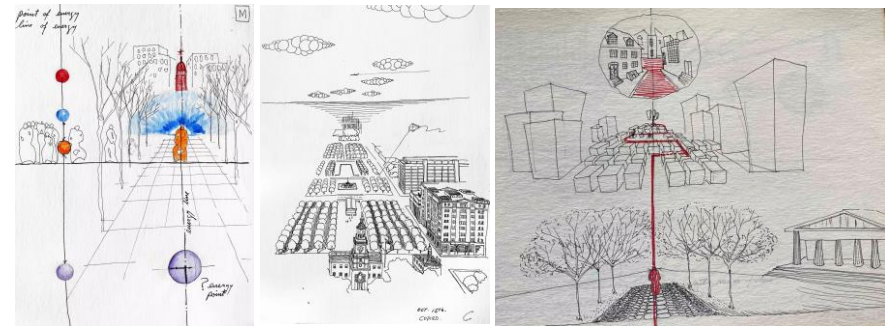
In this section we will examine Bacon's didactics through the record (documentary, graphic and oral) of the architect Luis Longhi Traverso, a student in the «**History and Theory of Urban Design**» course. As a first point, a document with very precise instructions that Bacon gave to his students at the beginning of the school year, entitled «**You and your Notebook**», is striking. In this document as a course program, it is evident that the practice of drawing, the way of recording —either from memory or as a spontaneous drawing in the place— and of touring the city in situ, is central in his way of conceiving the city. In this regard, Longhi recalls:

«I have [as] evidence the Sketch Book that Bacon asked us to have in class, where we had to have everything, after the walks around the city. He made us draw from memory: *'Draw what impressed you the most that we have visited,'* he said, then we did it. And then the next day he would tell us: *'Let's go back to the site and draw by looking at the site'.* That exercise is fantastic!» (Longhi, 2021).

In this way, far from being a strictly theoretical discipline, Bacon introduces the experience of the body in the city, at the same time he is interested in the effect or impression of the place in memory. In this way, the SketchBook will be fundamental as a support for graphic registration, as well as its confluences with fundamental aspects of its thinking enunciated in Design of Cities. Next, we confront the most significant points of his thought and the drawings, through the representations of Longhi as a student.

### The inner forces

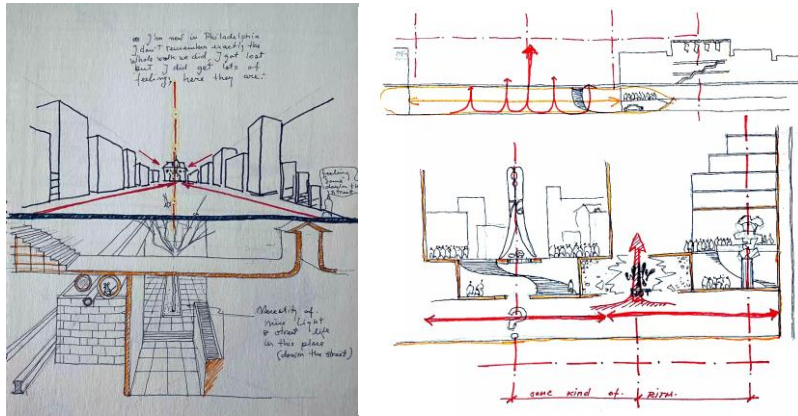
As for the first articulator, the internal lines of force, the record shows that the various exercises of the course (such as drawing the student's home-university route, or walking in a line through an urban axis), seek to understand -from this perspective- the city and the elements that configure and stress it (Fig. 9, 10 and 11). Indeed, as can be seen in the images, the drawing of auxiliary lines of color is recurrent, connecting different elements existing in the space itself, tensioning and articulating it. This shows its own nature and/or internal configuration. Likewise, it is useful to note the ongoing effort to illustrate this on graphic support.



**Figures 9, 10 and 11.** Sketchbook drawings showing the focal point or line of force that articulates the route on the road in a straight line. Left and right: Memory drawings. Medium: Copy in place of the axis of Market Street ending at City Hall. Loaned by the architect Luis Longhi Traverso.

### The simultaneous movement system

Regarding the system of simultaneous movements, —a fundamental concept in Bacon's book— the record shows the constant tendency to investigate, through drawings and diagrams, the ways in which roads and paths (vehicular and pedestrian) are intertwined between mass and space in the town. All this, from the space-perception relationship generated by the different speeds, the experiential continuity and its simultaneity. The idea of order can be verified, as an articulator of the various speeds, associating the speeds of movement, so that they are always continuous and simultaneous (Fig 12 and 13).



**Figures 12 and 13.** «Memory drawings» showing the system of simultaneous movements at various levels of the city and again the focal point. Loaned by the architect Luis Longhi Traverso.

architects and urban planners from various historical periods Alberti, Giedion, Camilo Sitte, Eiel Saarinen, incorporating a wide range of conceptual references and visions of architecture and the city. Likewise, we also find various references to the history of art, education, pedagogy, anthropology, psychology, among other areas that support this experiential perspective of the urban.

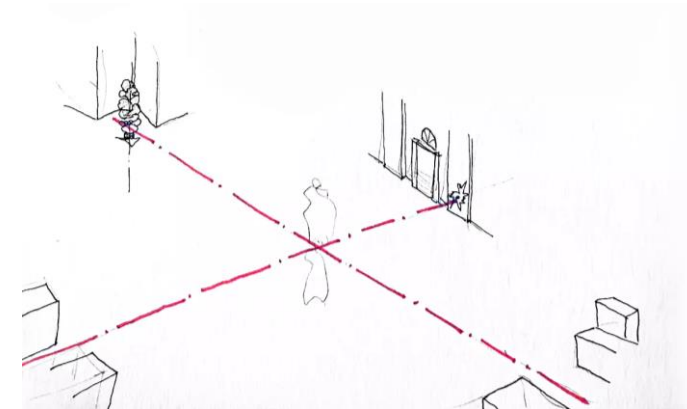
## The Awareness of space as experience

Regarding the **Awareness of space as experience**, Longhi recalls:

«In his course he would take us for a walk in Philadelphia (he did this phenomenological experimentation a lot) and said: "I want you to understand what an axis in the city is." And we were located in "Indian row" to walk the axis of Philadelphia. If the axis sent you to walk on a pool of water, then, first, he passed by and got wet (it was summer, obviously). I was walking down the axis and through the center of that pool, and we all had to do the same. Since then there is [for me] a different way of understanding what an axis is in the experimentation itself, feeling it» (2021).

The foregoing evidences the importance for Bacon of the experience of space, "putting the body there" (in urban space); placing the latter as a *sine qua non* of urban experience.

Finally, we mention the bibliographic references of the course under review. This bibliography covers very diverse areas of knowledge, without being strictly limited to urban planning. Along with the book that summarizes their way of seeing the city and their experiences in urban planning —"Design of Cities" (1974) - appear books by



**Figure 14.** «Memory drawings» showing the relationships of a simultaneous experience involving the viewer within the city. Loaned by the architect Luis Longhi Traverso

## Discussion and Conclusions

From the brief review carried out, we can conclude that Edmund Bacon's prolific work is coherent in its three fields of action (theoretical, professional, and academic). Thus, the three theoretical articulators considered here (the internal lines of force, the system of simultaneous movements, and the consciousness of space as experience) are implicit and explicit in the exercise reviewed. This allows us to suppose that such premises influenced the Philadelphia school, perhaps even other authors such as Louis Kahn. Similarly, the attention paid during exercise to the inflections that enrich the human sensory experience during a movement in space, such as changes in light and shadow, temperature, odors associated with space, sensorially, materiality and, in general, the phenomenological experience of involvement — immersive we would say today — constitutes the effective cornerstone of Baconian theory and didactics.

Likewise, in this brief review it can be noted that Bacon's theoretical and didactic postulates directly distance themselves from the modern conception of urbanism of the twentieth century, giving account, rather, of a possible proximity to perceptual and experiential practices, even close to phenomenology. Bacon is considered a modern urban planner, however, when analyzing his interest —mainly in his didactic exercises— in the dimension of the body in the city, perceptual relationships through memory and the senses, we can affirm that his vision as urban planners exceed merely stylistic issues placing him, to a certain extent, out of his time.

Indeed, albeit through different path than the European influence of aforementioned Josep Luis Sert and his text “Can Our Cities Survive” (1942), Bacon diverged from modern ideals and the political activism of CIAM and GATEPAC Group, making a decisive contribution to their rectification on American soil. Similarly, Bacon's postulates and didactics are concurrent with The West Coast urbanist (Berkeley) such as Donald Appleyard and Allan Jacobs, and their “Toward an Urban Design Manifesto”, which propose alternative ideas to CIAM and the Athens Charter, such as Howard's garden cities, among others. In this way, Bacon aligns himself with a phenomenological and experientialist vision of the city advocated by Rasmussen, Kepes, Kevin Lynch and Jane Jacobs, where humans connect in the affective manner.

Similarly, the links suggested by Bacon between the city and Paul Klee's painting and drawings are not reduced to mere graphic or semiotic consideration, but transcend the visual plane, settling on organizational and systemic. This distances his observations from the mere visual biomimetics (look) that tends to characterize some highly metaphorical organicist currents.

In the very action of drawing the city, Bacon refers to the memory and impressions that remain on the retina of the person who draws, and then confronts them with reality. It results in a practice that takes place in time and space, where both registers are essential to understand the perspective of those who face the city from representation and action. Issues related to the body not only as an organism sensitive to the place, but also considering the efforts inherent in the act of walking, perceiving and apprehending public space. Finally, this review also reveals the centrality that drawing and graphic representation have for Bacon, both in his course and in the experiential construction, this time, also in the didactic-academic of the urban.

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