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"Sun and Shadow:" Exploring Marcel Breuer's Basic Design Principle

Evangelia Tsilika

ABSTRACT This study is an exploration of Marcel Breuer's basic design methodology as it appears in his writings, particularly his 1956 monograph *Marcel Breuer: Sun and Shadow, the Philosophy of an Architect*. By identifying the influences that helped shape the background to his theoretical approach, and with the support of broader philosophical resources, the characteristics and subtleties of Breuer's particular concept of dualism in architecture are outlined. This allows for a new interpretative approach to the critical analysis of his postwar architecture, using structuralism, through which the specific qualities of Breuer's dualism are evaluated in terms of design.

Introduction

In 1956, the monograph *Marcel Breuer: Sun and Shadow, the Philosophy of an Architect*, edited by Peter Blake, was published.[1] This book is not only a full catalogue of Breuer's work from 1937 to 1955; it is, according to Blake, "primarily … [Breuer's] own statement about architecture, his philosophy."[2] It includes his principal essay "Sun and Shadow" on the subject of dualism in architecture, along with essays on the relation between architecture and nature ("Architecture in the Landscape"), as well as on the problems of city planning ("Thoughts

on the City"). These essays are an eloquent expression of the basic ideas that seem to have generated Breuer's architecture, for in Breuer's case it is undoubtedly theory that precedes building. His "Sun and Shadow" essay, in particular, sets out his notion of the role of dualism in architecture, something he had articulated publicly as early as 1934 in a lecture on Modern Architecture given in Zurich, when his work as an architect was only just beginning.[3] In this lecture entitled "Where do we Stand?" he stated that "contrasts have become a necessity of life," and referred to "contrasts like building and nature, a man's working and home life, voids and solids, shining metal and soft materials, living organisms like plants against the stark plain surface of a wall; also in the polarities of the discipline of standardization to the freedom of experiment." He went on to argue that, in architectural expression, "the power to preserve these extremes without modification (that is to say, the extent of their contrast) is the real gauge of our strength."[4] Fourteen years later, in his lecture "What is happening to Modern Architecture?" delivered at the Museum of Modern Art in New York, the same idea was more solidly expressed with the aid of an old Spanish saying: "The sensation of man-made space, geometry and architecture is there, together and in contrast with organic forms of nature and of man. *Sol y sombra* as the Spanish say. Sun and shadow – not sun or shadow."[5] However, it was in his "Sun and Shadow" essay of 1956 that he gave his most elaborate statement on the issue of dualism in architecture:

> The real impact of any work is the extent to which it unifies contrasting notions – the opposite points of view. I mean unifies, and not compromises. This is what the Spaniards express so well with their motto from the bull fights: *Sol y sombra*, sun and shadow. Half the seats in the bull ring face the sun, the other half is in the shadow. They made a proverb out of it – "sun *and* shadow" – and they did not make it sun *or* shadow. For them, their whole life – its contrasts, its tensions, its excitement, its beauty – all this is contained in the proverb *sol y sombra*.
>
> The easy method of meeting contrasting problems is the feeble compromise. The solution for black and white is gray – that is the easy way. To me this is not satisfying. Sun and shadow does not mean a cloudy sky. The need for black and the need for white still exists. The Spanish sun is not diluted by the Spanish shadow. Both, in their undiluted clarity, are part of the same life, part of the same ideal.
>
> [...] The strong opposite forces of ideas, all clearly expressed without compromise, and united in one – that has always been the element of real art.[6]

The concept of dualism belongs to a long philosophical tradition in Western civilization. From the Platonic dualism of a primordial virtual world and a secondary perceivable one to the Cartesian dualism of a thinking subject and an extensible object, dualism is associated with conceptual dichotomies such as nature and culture, emotion and logic, individual and society – dichotomies that mark universal categories and, often, unresolved conflicts.[7] Dualism comes to be structured mostly as a system of privileging, based on a superior and an inferior term.[8] The examples are plenty over the centuries: ideal over real, soul over body, male over female, etc., with an intensity that may vary in different eras and a structure that remains the same even with the inversion of the privileged terms.

The roots of the concept of dualism can be found in the philosophy of Heraclitus and the pre-Socratic Greek Philosophers.[9] According to Heraclitus's translator Athanassios Kyriazopoulos, "Heraclitus' fundamental position is that of the perpetual struggle [between] and at the same time the unity of opposites. The equilibrium of the world is a dynamic equilibrium, arising from the constant competition (war, fury) of the opposing forces (day-night, cold-hot, etc.), which are at the same time complementary, since nothing can be understood without its opposite."[10] As Kyriazopoulos states, for Heraclitus, "the world is a unified self-regulating set, and apparent contrasts or contradictions form part of its dynamic unity."[11]

"*Sol y sombra*," the Spanish saying that encapsulates folk wisdom, manages to express Heraclitus's thoughts in the most laconic way. "Sun and shadow" talks of life itself with all its richness and variety, struggles and poetry, and Breuer seems to acknowledge its universality. Recognizing the power and dynamism that originate from contrasts in life, he goes one step further to underline that the sun is not privileged over shadow and shadow does not dominate the sun. Instead, there is need for sun as much as there is need for shadow and there is need for both to be expressed in all their intensity. In his concept of dualism, the two contrasting terms are equally necessary and equally esteemed. Both terms, both elements should be used in art (and thus in architecture) without reduction, dilution or compromise. In addition to their equal value, for Breuer the two terms should be simultaneously present in a project, just as sun and shadow are both present in the bullfighting arena, defining its essence. This means that they are not in a relation of an on-and-off exclusion, where one of the two terms is eliminated. Thus Breuer rejects in his writings the limiting logic of "either-or," a logic that, according to Robert Venturi some two decades later, "has characterized orthodox modern architecture."[12] Breuer instead embraces the open logic of "both-and," the two antithetical terms united in one, while explicitly rejecting what he sees as the weakness of a compromised gray, the "conjunctive 'yet'" that Venturi evangelizes.[13]

Existing studies of Breuer have tended to focus on his connection to the Bauhaus in Germany and to highlight his work as a designer of

furniture – furniture that is still in production, and still highly prized. His architecture has received much less scholarly attention, his concept of dualism and its implementation in his work almost none at all.[14] It is in the light of Breuer's "Sun and Shadow" essay that this study attempts to set out his perception of dualism, and to examine his architectural choices and the consistency between his words and the early postwar work included with the essay in his 1956 monograph.

The Origins of Breuer's Dualism

To understand Breuer's dualism entails considering the influences from his formative years at the Bauhaus. Founded in 1919, the Bauhaus was open to the promotion of new ideas; its students were familiar with the experiments of Picasso and the work of Cubist and Dadaist artists, the architecture of J.J.P. Oud, Gerrit Rietveld and Le Corbusier, as well as Russian Constructivism.[15] Breuer, born in Hungary in 1902, went to the Bauhaus only a year after Walter Gropius had established the school, at which point there was no specific architecture course. He acknowledged a kind of osmosis with all these artists, architects and movements which had a great impact on his later architecture.[16] However, it was certain Bauhaus teachers in particular who nourished Breuer's theoretical ideas and influenced his thoughts on dualism.

The expressionist artist Johannes Itten, whose influential Preliminary Course Breuer was obliged to follow as soon as he arrived in Weimar,[17] acted as a catalyst for the formation of Breuer's thoughts on dualism as well as his means of expression.[18] Indeed, Itten's course was entirely structured through oppositions. In the introduction to his book on the basic course at the Bauhaus, Itten declared:

> The basis of my theory of opposition was the general theory of contrast. The chiaroscuro (brightness-darkness) contrast, the material and texture studies, the theory of form and colours, the rhythm and the expressive forms were discussed and demonstrated in terms of their contrast effect. Finding and listing the various possibilities of contrast was always one of the most exciting subjects, because the students realized that a completely new world was opening up to them.[19]

It is easy to see here the origins of Breuer's focus both on contrasts as the base of any composition (pictorial or architectural) and on the attentive selection of contrasting qualities to accomplish a definite expression. It is also easy to discern what triggered the experimentation with materials, patterns and textures that is prominent in his work.

However, although Breuer recognized the importance of Itten's influence as an artist and a teacher, he never felt "much in accord" with him.[20] Itten was a zealous promoter of his own version of Eastern philosophy and mysticism, reflected in both his physical appearance

(shaven head and white robes) and his teaching methods (his students undertook chanting and breathing exercises at the beginning of each class); he either fascinated or repelled students, or both at once.[21] In 1923, political pressures caused Itten to resign from the Bauhaus, while Gropius shifted the School's emphasis to art and craft as a precursor to industrial design, connecting its work with manufacturing in the outside world.[22] Young Breuer was in accordance with this revision. With a rational and practical approach, he was ready to translate the instructions of great masters like Itten, or, later, Klee and Kandinsky, into teachings for industrial design and architecture, detaching them from their expressionistic, symbolic or mystic origins.[23] In the belief that architectural practice is ultimately concerned with prevailing social expectations and economy, he wrote in 1922 that:

> Hard as I try, I see no chaos in our time ... Our needs seem clear – the possibilities limited only by us. The main thing is that we act at the point where a need appears and use our strength to find an economic and coherent solution.[24]

For Breuer, every problem that has been posed correctly finds its solution in a practical and scientific way: through logical analysis and experimentation.[25]

Even in the renewed Bauhaus, however, fine arts remained of essential importance. In June 1922, the painter Wassily Kandinsky arrived there; he had by that time abandoned his overtly expressionist period and turned his attention to the symbolic power of geometric forms.[26] We know that Breuer admired Kandinsky, even though he never attended any of Kandinsky's classes.[27] Thus, it can be presumed that he was exposed to Kandinsky's work and theories, which inevitably had an impact on him, theories such as the creation of a "language" in painting, based on contrasting values of, for instance, warm and cold, light and dark.[28] But it was the impact of Paul Klee that Breuer himself specifically mentions.[29] In his Bauhaus teaching notes, Klee declared clearly that "A concept is not thinkable without its opposite. The concept stands apart from its opposite. No concept is effective without its opposite."[30] Klee's theory class was a great influence on Breuer. In it, Klee sought to teach his students how to capture natural phenomena through meticulous observation and analysis of their apparently universal laws – a procedure through which "science and art fuse."[31] He showed them what he understood as the balance in nature between an act and its counter-act, and its implementation in art. He argued for the value of what he called the "nonsymmetrical balance,"[32] an idea similar to Kandinsky's "new harmony," which Kandinsky described as follows:

> The strife of colours, the sense of balance we have lost, tottering principles, unexpected assaults, great questions, apparently useless striving, storm and tempest, broken chains, antitheses

> and contradictions, these make up our harmony ... Harmony today rests chiefly on the principle of contrast which has for all time been one of the most important principles of art.[33]

This idea, fully explored in Breuer's architecture, addressed the question of *how* opposites, the two contrasting values, could be *united* (and not compromised) in art and architecture.

Still, no influence was more decisive for young Breuer than that of Walter Gropius, nineteen years his senior, through the latter's teaching, the organizing principles he set at the Bauhaus, and his architecture. Gropius's statements concerning dualism were characteristically straightforward: "The New Architecture is a bridge uniting opposite poles of thought."[34] Gropius's views on creating architecture with an emphasis on materials, technique or technology, social conditions and functionality, as well as certain key Bauhaus principles, such as independence from past standards, the unity of art and technique, and the idea of "total design," passed unaltered to Breuer.[35]

The last two of these principles are of particular relevance in shaping Breuer's perspective on dualism. Influenced by the Wagnerian *Gesamtkunstwerk* (total work of art), the founder of the Bauhaus envisioned the union of all arts under the coordination of the architect, hence a unity of arts and technology, in order to create a contemporary esthetic experience that would lead to a new perception of space.[36] In 1934, Breuer commented on Gropius's vision of a union of arts and technique, saying that it "most nearly expresses the idea that in the New Architecture these concepts are no longer separable."[37] Breuer's language here points us toward his friend Sigfried Giedion's claim that art and science had been separated during the nineteenth century and that only a few great engineers were able to maintain a balance between thinking and feeling. For Giedion, historian and chronicler of the Modern Movement, its greatest achievement would be to find a new balance between esthetic and technological ideals.[38] A logical extension of the unity of arts and technique, the idea of "total design" had a dual character. On the one hand, it was outward-looking, seeking to encompass all forms of design and address every aspect of everyday life; on the other, it turned everything inward, forcing all forms of design to conform to one idea. Breuer used both aspects of "total design" when implementing the concept of dualism in his architecture: he used binary oppositions sometimes as simple primary structuring devices within the composition of a more complex whole, sometimes as the central, dominant idea that governs that whole. The study of Breuer's work that follows attempts to understand what his dualism embodied, and how it was articulated.

The Principle of Dualism in Breuer's Architecture

Method of analysis

Linguist Ferdinand de Saussure, writing also in the early years of the twentieth century, thought of antithetical pairs as fundamental organizers

– the basic structures – of philosophy, culture and language. These structures are easily identifiable and take their meaning from their juxtaposition of opposites.[39] Claude Lévi-Strauss's anthropological studies came to support de Saussure's ideas of structural linguistics. With the help of a structuralist method, Lévi-Strauss discovered a hidden order, a common code system expressed in the plethora of indigenous myths. Lévi-Strauss stated that peoples without writing unconsciously analyze the world before they begin to reconstruct it in order to understand it and eventually create a complete picture of it. The binary oppositions that derive from this necessary analysis form the basis for the creation of structures, the simplest classification schemes on which language, social organization and myths are based, providing a very efficient system of encoding.[40] Different binary oppositions that are closely associated with each other come to generate ever more elaborate levels of classification, providing possibilities for shifting and developing meaning. Each individual term can be developed along what Lévi-Strauss describes as two axes, one metonymic, in which the term and its antithesis form a contiguous pair, and one metaphorical, in which qualities are transferred from one antithetical pair to the next by analogy. In Table 1, for example, the metonymic pair "nature/culture" is found in three further metonymic axes of analysis and classification, "child/woman-wife" (concerning kinship), "savage/tame" (concerning behavior and hence society) and "raw/cooked" (concerning ritual), while metaphor, in the two vertical axes, establishes relationships or homologies between these terms of kinship, behavior and ritual.

Table 1.
Elaboration of the antithetical pair nature/culture in the metonymic and metaphorical axes

	Metaphorical	
Metonymic	Nature	Culture
	Child	Woman-wife
	Savage	Tame
	Raw	Cooked

This article borrows from the structuralist ideas of de Saussure and Lévi-Strauss to reconsider Breuer's architecture from 1937 to 1955, using them to examine his underlying principle of dualism. We could say that binary oppositions are used as a methodological tool in the evaluation of architecture, a method that can be traced back to art and architecture historians such as Heinrich Wölfflin and Erwin Panofsky, themselves immersed in similar dualistic thinking.[41] As well as establishing the binary oppositions – the basic structures – that underlie Breuer's design, the study dwells on the associations between these structures using the structuralist method described above, in order to both classify Breuer's work and determine the different levels of his dualism. In doing so, it aims to elucidate the fundamental ideas behind the "Sun and Shadow" essay and evaluate the way in which Breuer's

theoretical approach is reflected in his architectural work, asking whether he succeeds in "interlocking philosophy and realization."[42]

Dualism and function

The political changes in Germany during the 1930s, specifically Hitler's rise to power, caused Gropius – along with many other intellectuals and scholars – to leave the country. He arrived in London in 1934, and Breuer followed within the next year. When Gropius moved to the United States in 1937, he once again encouraged Breuer to join him, with the potential of a partnership and a position on the Harvard faculty. Breuer moved to Cambridge, Massachusetts and taught at the Graduate School of Design at Harvard from 1938 to 1947. His business partnership with Gropius ended in 1941, when Breuer established an independent practice in Cambridge, where he stayed for five more years before moving to New York City, his base until the end of his career.[43]

When, in 1943 – even before the end of the war – the need for economic and quickly-constructable housing for returning veterans arose in the United States, Breuer began to study housing typologies.[44] He made a thorough study of the life of the modern family, systematized its actions and needs, and established a clear distribution of space for them. In this way, he prioritized uses to create distinct categories of main and secondary spaces, public and private, traffic and staging areas, children's and adults' spaces, indoor, outdoor and transitional spaces. After determining the practical necessities of a typical residence and developing its program, he ended up with a limited number of types characterized by the clear separation of the private and the public zone, otherwise described as the day and the night zone.[45] These zones are fully visible in the sketches for the Wellfleet Housing Development, Bi-Nuclear H House project in Wellfleet, Massachusetts (1943), and especially in his drawings entitled "flow of living in house" (Figure 1). In these, black indicates the private areas (for "studies and sleep") and

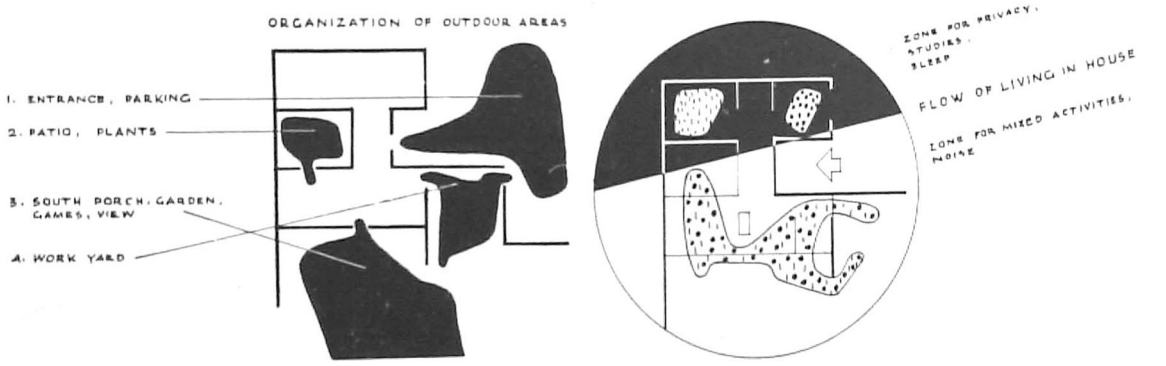

Figure 1
Wellfleet Housing Development, Bi-Nuclear H House, Wellfleet, Massachusetts, US (1943). Drawing titled "flow of living in house." Courtesy of the Marcel Breuer Papers, Archives of American Art, Smithsonian Institution.

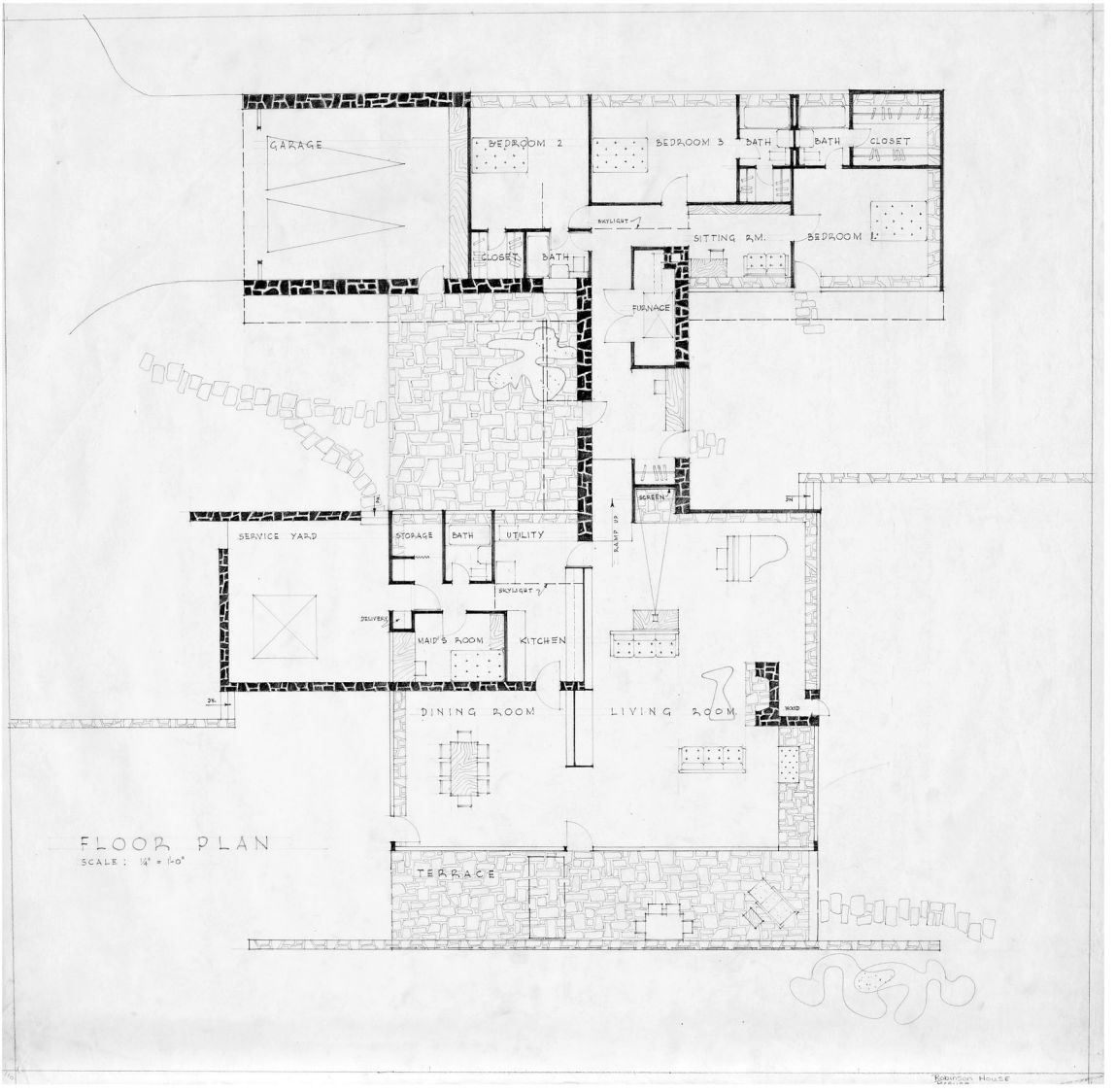

Figure 2
Robinson House, Williamstown, Massachusetts, US (1946–1948). Plan of main floor. Courtesy of the Marcel Breuer Papers, Special Collections Research Center, Syracuse University.

white the public zone (for "mixed activities, noise").[46] Both are of equal value and a clear distance is established between them.

Two types prevail in Breuer's housing studies, the "long house" and the "bi-nuclear house."[47] In the "long house," the living room occupies one end and the bedrooms the other end of the rectangular plan, while the kitchen and the sanitary facilities are in the middle. Typical examples of this type are the architect's own first house in New Canaan, Connecticut (1947–1948) and the House in the Museum Garden, an exhibition house in the Museum of Modern Art, New York (1948–1949). The "bi-nuclear house" can be considered a development of the "long

house," as it intensifies its dualism, separating activities into two functional zones that form separate wings, splitting them into day and night areas, based on the public/private antithetical pair. The wings are typically joined by a narrow corridor that usually forms the entry space. A characteristic example of the "bi-nuclear house" is the Preston Robinson House in Williamstown, Massachusetts (1947–1948) (Figure 2). Variations of this type articulate further antithetical needs. For example, the master bedroom is sometimes placed within the day areas, creating an added division into adults' and children's zone (see, for instance, the architect's second house, Breuer House II, New Canaan, Connecticut (1951)).

By means of elementary contrasts deriving from a thorough study of the specific circumstances, Breuer created a domestic architecture which exploits dualities in order to efficiently resolve functional and environmental requirements.[48] The composition of these types was based mainly on one binary opposition, albeit rich in mental associations and analogies, that of public/private (see Table 2). Those variations that include the parent/child distinction integrate it within the main division between public and private. In the "bi-nuclear house" type, the contrast between the antithetical pairs, as presented in Table 2, is elaborated, and the difference between the two terms becomes more clearly articulated.

Table 2.
Elaboration of the antithetical pair public/private

	Metaphorical	
Metonymic	Public	Private
	Day	Night
	Parents	Children
	Active	Calm
	Noise	Quiet
	Open	Secluded
	Extrovert	Introvert
	Vulnerable	Secure

The emphasis on one fundamental division that corresponds to functional issues has been accused by some of giving the buildings a diagrammatic character, one which is only over-emphasized by articulation into wings. Joachim Driller argues that Breuer treats space two-dimensionally, and that the layout of his houses is schematic, without complex relationships or rating systems.[49] According to Paul Rudolph, the clarity of articulation manifested in architecture such as Breuer's is due to a simplified program for living, where the architect is "highly selective in determining which problems to solve." Rudolph claims that this tendency derives from the emphasis given by the Modern Movement to the solution of functional problems above all else.[50] One of Breuer's earliest articles, published in *Offset Magazine* in 1925, appears to confirm Rudolf's concerns; in it, Breuer declares laconically that "When we form objects so that they function correctly and do not interfere with each other in their functions, there is no more to be done."[51] Yet Breuer's

work is not as reductive as this would suggest, as an exploration of the way in which antithetical pairs are elaborated from and beyond the merely functional makes clear.

Dualism in construction and use of materials

Breuer's domestic architecture becomes less diagrammatic as soon as we begin to look beyond the plan. In three dimensions, his dualism develops into juxtapositions of materials with contrasting qualities, with emphasis given to the tensions between them. As he declared in his 1948 lecture at the Museum of Modern Art:

> The most contrasting elements of our nature should be brought to happiness at the same time, in the same work, and in the most definite way. The drive toward experiment is there, together with and in contrast to the warm joy of security at the fireplace. The crystallic [sic.] quality of an unbroken white, flat slab is there, together with and in contrast to the rough, "texture-y" quality of natural wood or broken stone. The perfection of construction and detail is there, together with and in contrast to simplicity, broadmindedness of form and use.[52]

The coexistence of antithetical materials – each equally important and clearly separated from each other – does not seem to have been a feature of Breuer's architectural work at the start. While in his furniture, Breuer experimented with contrasting materials and qualities as early as his Bauhaus years, in his first architectural projects such an interest is not apparent. These projects were either for lightweight constructions that had an immaterial, diagrammatic character, or for constructions consisting of only of the bare, plastered planes which at the time dominated modern architecture. Breuer's travels to Central Europe and the Mediterranean Basin in the early 1930s seem to have played an important role in expanding his architectural vocabulary, sparking his interest in developing a dialogue between modern and traditional architecture, new and old materials and structures.[53] His relocation from Germany to England in 1935 and his collaboration there with architect F.R.S. Yorke was an opportunity for Breuer to think more intensely about the relation with tradition or even with vernacular architecture, since modernism in England was still largely perceived with distrust. He turned thus to an earthier, less planar esthetic, emphasizing the contrast between mass and transparency. In his collaboration with Walter Gropius, from 1937 to 1941, which followed his move to the United States, the coexistence of old and new materials took on a new intensity: heavy, self-supporting fieldstone walls were juxtaposed with steel frame or timber constructions, adopting and adapting the light American balloon frame.[54]

In the 1956 "Sun and Shadow" essay, Breuer addressed directly the opposition between transparency and solidity. Transparency, he argued,

achieved through the use of glass, is one of the most interesting new possibilities in architecture, offered by technological progress. Yet enclosing everything in a glass box is too simplistic a solution to many practical problems. "Transparency is definitely one of our objectives," he stated:

> [...] But transparency needs also solidity. And not only for aesthetic reasons – but also because total transparency leaves out such considerations as privacy, reflecting surfaces, transition from disorder to order, furnishings, a background for you, for your everyday life. Transparency becomes more so next to solidity – and solidity makes it work.[55]

Breuer never used glass in his architecture uncritically. His experiments focused on the specific effects of bringing natural light into interior spaces, conscious always of their use. They involved glass of different levels of opacity, and in panes of different sizes, according to orientation and, of course, to the function housed in the space inside. He sought to extend the esthetic choices that the specific material offered him and avoided framing it with steel, a combination that had become a stereotype in Modern Architecture. The contrasting solidity was achieved mostly with the use of stone and concrete. Breuer used stone often to provide a rough rusticated base, a traditional material employed to intensify the sleek smoothness of the glass, a modern material. But Breuer's rusticated walls are never wayward; they have a strict geometry.[56] Concrete was for Breuer another modern material, to be used in a highly elaborated form, especially in his work of the later 1950s and after; he gives it either an industrial smoothness, or casts it into recesses and protrusions that highlight its texture.

The Preston Robinson House of Figure 2 provides a typical example of Breuer's distinctive juxtaposition of stone and glass. Using the Robinson House as an example, it becomes easy to trace binary oppositions, such as heavy/lightweight, rough/sleek and warm/cold, along with the oppositions of traditional/modern and secluded/open (see Table 3). The last opposition takes us back to the issue of public and private. The contrast of solid/transparent itself leads to another basic binary

Table 3.
Elaboration of the antithetical pair solid/transparent

	Metaphorical	
Metonymic	Solid	Transparent
	Stone	Glass
	Traditional	Modern
	Regional	International
	Rough	Sleek
	Heavy	Lightweight
	Warm	Cold
	Secluded	Open

opposition, that of interior and exterior, since the glass panels enhance the penetration of one into the other. In the Preston Robinson House, materials are inherent to the architecture; their selection is far from decorative. The long and heavy fieldstone walls of different heights, placed so as to create layers of depth, and extended into the surrounding landscape, anchor the house to the ground as they determine the division of functions within its continuous, flowing space.

The relation between architecture and nature

Around 1945, perhaps under the influence of Mies van der Rohe's work, Breuer began increasingly to open up his floor plans, trying to integrate the surrounding space within the architecture of the building. Aiming to achieve spatial depth, he places free walls (panels, fieldstone walls, walls painted in bright colors, or defined by shelves or textiles) asymmetrically at right angles to each other. These free walls structure both the interior spaces and the surrounding landscape. It is as if they parade through both building and landscape, organizing space in its horizontal dimension just as ceiling and floor, with their large projections beyond the walls, structure it vertically. The envelope of the building becomes fluid. The Preston Robinson House is an example of how fieldstone walls juxtaposed with glass planes together suggest a continuity of the inside and the outside. The dualism or binary opposition of inside/outside, or open/closed, is playfully both asserted and disrupted, as is that of building versus landscape.

Reflecting on the relation between architecture and nature in his 1948 lecture at the Museum of Modern Art, Breuer argued that "the sensation of man-made space, geometry and architecture is there, together and in contrast with organic forms of nature and of man."[57] In the "Sun and Shadow" essay he included an observation drawn from his visits to the Acropolis: "With all their love for precision in buildings, the Greeks walked to their temples on the rough granite rock."[58] The stark contrast of precise, prismatic buildings with their natural environment, the "man-made" object placed in a landscape that is left rough, is clear in the examples of the Breuer Cottage in Wellfleet, Massachusetts (1948–1949) and the Ceasar Cottage in Lakeville, Connecticut (1948–1949). In both cases, the pristine volumes of the houses that rise above the ground on *pilotis* look as though they have just landed amidst the unkempt, pine-forested landscape. The presence of opposing values serves to emphasize their relationship as well as their difference.

Breuer's understanding of the relationship of the house to the garden and the surrounding countryside, as expressed in the following passage from his "Architecture in the Landscape" essay, provides a clear illustration of his "Sun and Shadow" principle of dualism, stressing once more the need for simultaneity, for both/and rather than either/or:

> There are two entirely different approaches, and both may solve a problem well: there is the house that sits on the ground and

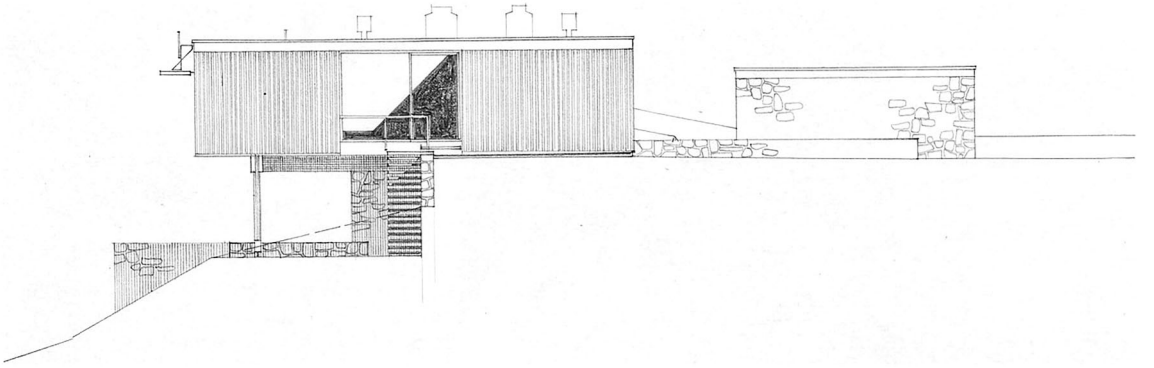

Figure 3
Starkey House (or Alworth House), Duluth, Minnesota, US (1954–1955). Northeast elevation. Courtesy of the Marcel Breuer Papers, Special Collections Research Center, Syracuse University.

> permits you to walk out into the landscape at any point, from any room. That is a good solution, for children, in particular. And then there is the house on stilts, that is elevated above the landscape, almost like a camera on a tripod. This will give you a better view, almost a sensation of floating above the landscape, or of standing on the bridge of a ship. It gives you a feeling of liberation, a certain élan, a certain daring, while the idea of being in a house close to the ground might do something to increase your sense of security. My own favorite solution is one that combines these two opposite sensations: the hillside house.[59]

An example that perfectly illustrates the "hillside house" idea is the Starkey House (formerly Alworth House), in Duluth, Minnesota (1954), co-designed with Herbert Beckhard and Robert F. Gatje to take advantage of the view of Lake Superior (Figure 3). Here, the house is not simply placed on or above the ground as an object. Instead, it is cut into the sloping ground, embedded in it, while at the same time flying over it in a cantilever to gain a better view. The distinction between the tectonics of anchorage and those of cantilever is supported by a distinction in materials. Rustic stone walls, solid and permanent, mediators of the building with the soil, articulate the parts of the building that are cut into the hill. Light, wood-framed

Table 4.
Elaboration of the antithetical pair rooted/hovering

	Metaphorical	
Metonymic	Rooted	Hovering
	Permanent	Ephemeral
	Assurance	Uncertainty
	Stone	Wood/glass
	Heavy	Lightweight
	Rough	Smooth
	Regional	International
	Traditional	Modern

superstructures, flimsy and ephemeral, form the parts that hover. As presented in Table 4, the contrast in materials is also a contrast in construction methods, and both are related to a number of the opposing values found earlier in our transparency/solidity opposition (see Table 3).

An elaborated paradigm: De Bijenkorf Department Store, Rotterdam, The Netherlands (1953–1957)

Studying Breuer's writings and his early postwar domestic buildings reveals a clear consistency between his words and his architecture. His designs are structured through contrasts that appear deeply rooted in practicality, contrasts that are presented in all their clarity. One basic antithetical pair usually prevails in each work, generating many levels of classification in the metonymic axes and a rich chain of connotations in the metaphorical axes, the subsequent antithetical pairs operating often to reinforce the strength of the first.

While domestic architecture, the work through which he first established himself in the United States, dominated Breuer's work until 1955, he also completed a number of public and urban projects. In these more complex projects, Breuer explored dualism in the two ways we associated earlier with "total design." Binary oppositions were used either as primary structuring devices in the composition of a more elaborate whole (evident in projects such as his study for the South Boston Redevelopment Plan (1943, not built), or earlier works like his Hospital for 1100 Beds, Elberfeld, Germany (1928–1929, not built) – projects that involve repetition of a functional unit), or as a dominant idea governing all aspects of the whole, enfolding complexity in an apparent simplicity, as at the Bijenkorf department store in Rotterdam (Figure 4). The Bijenkorf was presented as "work in progress" in the 1956 *Sun and Shadow* book.

At the Bijenkorf, the compositional point of departure for Breuer was set up by two binary oppositions: ephemeral and permanent, opaque and transparent. The first opposition arose from an innate ambiguity in the role of the building. On the one hand was the ephemeral character of fashion and its sales techniques, intrinsic to the department store idea, which Breuer addressed through the flexible and open plan of the interior.[60] On the other was the need to suggest the stability and reliability of the company, reinforced by the "new monumentality" expected of the building in the postwar reconstruction of Rotterdam's city center, hence the decision to envelope three of its facades in panels of richly striated travertine marble.[61] The heavy gray of the natural stone slabs, cut on East and West facades into large hexagons arranged in a distinctive honeycomb pattern (*de Bijenkorf* means "the beehive"), communicated the desirable corporate identity as well as bringing a civic gravity, resulting in a solidly enduring building form unaffected by immediate trends of fashion (see Table 5). The second opposition, opaque and transparent, was explored through the stark contrast between the solid mass of the travertine walls of the three main facades and the

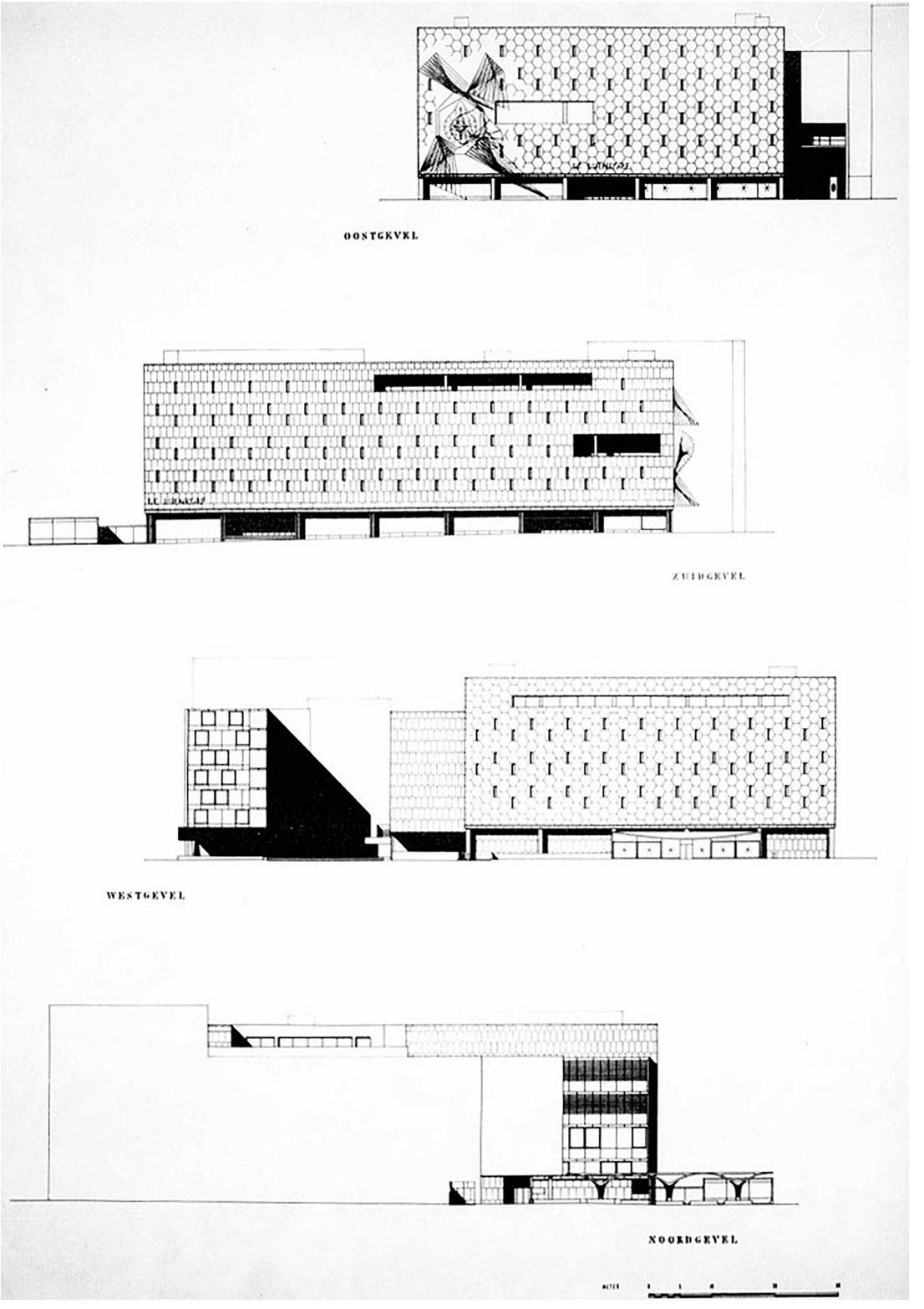

Figure 4
De Bijenkorf Department Store, Rotterdam, the Netherlands (1953–1957). Elevations. Courtesy of the Marcel Breuer Papers, Archives of American Art, Smithsonian Institution.

Table 5.
Elaboration of the antithetical pair permanent/ephemeral

	Metaphorical	
Metonymic	Permanent	Ephemeral
	Facade	Plan
	Firm	Adjustable
	Static	Fluid
	Classic	Fashionable
	Diachronic	Contemporary
	Monumental	Trivial
	Inalienable	Commodifying

Table 6.
Elaboration of the antithetical pair opaque/transparent

	Metaphorical	
Metonymic	Opaque	Transparent
	Stone	Glass
	Heavy	Lightweight
	Solid	Void
	Hovering	Rooted
	Volumetric	Planar
	Open	Secluded
	Front	Rear
	Public	Private
	Carrier of meaning	Free of meaning
	Authority	Liberty

transparent or translucent glazing of the fourth, north facade. This elevation fronted an office annex, its aluminum skeleton supporting a refined yet highly elaborated curtain wall, where the stratification of transparent and translucent glass modulated ambient conditions for the interior spaces.[62] It is clear that the coexistence of glass and stone surfaces at the Bijenkorf reflects the functional needs of the building: while natural light is essential for an office space, it is detrimental to the needs of a department store, understood to be a coherent interior world. Therefore, in the Bijenkorf's case, as presented in Table 6, the correspondence between antithetical pairs inverts that which we associated with his domestic architecture: the transparent no longer correlates with the open, nor the opaque with the secluded, and consequently, the transparent no longer corresponds to the public, nor the opaque to the private. But what is mainly underlined in the contrast of the north elevation with the others is its specific character: turning away from the busy streets of Rotterdam, the north elevation is the only one that does not bear any responsibility for institutional identification – that is, for transmitting the public image of the department store and its social purpose.

Breuer used the binary opposition of opaque and transparent not only to differentiate the north elevation from the others, but also to make distinctions within the facades. On the east, south and west facades, the building appears as a heavy box of stone suspended over a ground floor

of glass, set back from the surface of the stone and forming the entry and the street level display windows. The antithesis of rootedness (low) and hovering (high) is subverted, and the connotations of stability in the metaphorical axis of the opposition ephemeral/permanent are called into question (see Table 5).

The solidity of the facade is both accentuated and disrupted yet further by a regular pattern of vertical slit windows that puncture the travertine slabs, which has the effect of asking us to wonder whether what we see is solid or void. During the day, the windows are unobtrusive, and simply have the utilitarian purpose of selectively providing light to customers inside. At night, together with the horizontal openings, they start to dissolve the monolithic volume. What is an indisputable preponderance of solid over void during the day seems almost reversed after dark, suggesting a coexistence on equal terms of both contrasting values.

At the Bijenkorf, Breuer uses a technique he learned, as we have seen, from Paul Klee: that of nonsymmetrical balance, the balance between unequal parts or contrasts that comes to replace the earlier idea of balance through symmetry. With this technique, Breuer managed to make a solid building with a rigid geometry appear dynamic, through the carefully balanced interdependence of his long, horizontal openings and the heavy mass that defines them. We might say that Breuer maintained a classicism in his use of pure geometric shapes, which he then transformed, changing a static balance into a dynamic one by shifting the visual center of gravity first toward one side of the building, then toward the other. The result is a composition fully aware of the meter and rhythm that derives from its structural regularity and the pattern of its cladding, with a harmony or balance that, as with symmetry, demands that no part can be removed or replaced without upsetting the whole.

At the Bijenkorf, one of Breuer's best-known buildings, public and urban in character, clearly more complex in scope than his free-standing houses in the landscape, he used his functionally-derived binary oppositions to create a building that fully embraces his "both-and" logic. There is, though, a new dimension here, in the overt use of a symbol, that of the beehive, or rather the honeycomb within it. The marble panels of the facade that are cut and assembled in a hexagonal grid draw our attention to the name of the store and its meaning.[63] A series of associative concepts emerges: crowds, hustle, productivity, labor, wealth, the center of activity, etc. At the Bijenkorf, the beehive was used to symbolize the restoration of the bourgeois buzz of central Rotterdam after the devastating bombing of World War II.[64]

The theory articulated in "Sun and Shadow" is fully manifested in the Bijenkorf, making the building the culminating example of an architectural approach developed by Breuer since his first projects of the 1940s. It also points toward experiments that will become characteristic of his later work. The clearly delineated form of the Bijenkorf, the playful and contradictory emphasis on the weight of its volume, the experiments with

striations and texture of the surface of the stone panels, the use of symbols, the search for a "new monumentality" – all these are elements of a growing desire to go beyond functionally-derived dualism and recover the more esthetic, symbolic and representational aspects of architecture. A comment from Breuer regarding his design for St. John's Abbey church and campanile in Minnesota (1953–1961) describes his changing concerns: "The modern man in general has a great thirst for works of content, if you want, for the spiritual. He is looking for something that expresses more than pure functionalism, for a deepening of content."[65]

Conclusion

This study of Breuer's architecture, based on his "Sun and Shadow" principle, attempts to investigate, and even to elaborate on, the architect's perception of dualism. From his early postwar domestic architecture, when he first explored dualism through housing types designed to solve specific functional problems, to more complex projects of a public and urban character like the Bijenkorf, the aim has been to explore the variety of the oppositions he used as well as their conceptual richness. While Breuer's preoccupation with addressing particular functional needs initially ran the risk of over-simplifying architectural design and creating diagrammatic buildings, he always managed to establish a rich set of relationships within and beyond his buildings by emphasizing and involving texture, light, air, view and motion, connecting the buildings to their environment. At the Bijenkorf, the architect seems to have envisaged the building as if it were a complex organism with a specific and important role in the postwar redevelopment of Rotterdam, bringing out the intensity and playfulness of the opposing forces, again initially functionally derived, through inventive exploration of the possibilities of apparently simple materials. Throughout his work, Breuer reasserted the basic argument of his "Sun and Shadow" essay, that "[t]he search for a definite, clear answer that satisfies opposite aims and needs is what takes architecture out of the realm of abstraction and gives it life – and art."[66]

Retrospectively, Breuer's approach could almost be labeled as structuralist.[67] Or perhaps we might say that the structuralists are more indebted to the same fascination with dualism that pervades early twentieth century art and architecture than has previously been acknowledged. For Breuer, binary oppositions are deeply embedded within architecture, as they are in everyday life. He sees dualism, through the basic structure of the antithetical pair, as inherent in every aspect of life, for the same reason that for Lévi-Strauss it is inherent in human thought: out of necessity, the need to conceptualize the world, to comprehend its laws and the process of creation. Moreover, it is now possible to state that it is through the identification of oppositions related to both the functional and the esthetic aspects of architecture that Breuer found a language of creative expression.

By introducing two contradictory elements simultaneously in a project with his "both-and" logic, Breuer showed that our understanding

of, and pleasure in, the quality of both elements arises through their difference. Breuer's "and" is the intermediate space between the two equally important antithetical terms which grants them the right to coexist in a way that makes them at once detached and interactive, in an irreconcilable tension. Therefore, architectural form itself is considered a work in progress for Breuer and its meaning is endogenous: it grows from within. The function, structure and materials of the architectural work, the composition of spaces and volumes, the mode of interaction with the landscape and the specific climatic conditions, the colors and textures used, are some of the most important elements of morphogenesis of his architecture, giving it distinctive material presence as well as asking to be read. These are what make a form stable or unstable, flexible or hard, light or hazy, warm or cold, humble or imposing. With expressive power, these features act as carriers of messages and information, often synthesizing an integrated self-referential language. This brings Breuer, at least in the architecture of his early postwar period, closer to the concept of the Hegelian dialectic that posits that contradictions are inherent in and internal to things, an idea that ultimately derives from Heraclitus. He does not seek to find hidden meanings deriving from built form; on the contrary, he analyzes and disintegrates form itself in order to identify its governing structures, their interrelations and its entire generative process.

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Notes

1. Marcel Breuer, *Marcel Breuer: Sun and Shadow, the Philosophy of an Architect*, ed. Peter Blake (London: Longmans, Green, 1956).
2. Ibid., 9.
3. Marcel Breuer Papers, 1920–1986. Archives of American Art (AAA), Smithsonian Institution. Series 6.1: Lecture titled "Wo Stehen Wir? ("Where do we stand?"), Zurich, 1934.
4. Ibid.
5. Marcel Breuer Papers, AAA, Series 6.1: Manuscript of lecture titled "What is Happening to Modern Architecture?" Museum of Modern Art, New York, February 11, 1948.
6. Breuer, *Marcel Breuer: Sun and Shadow,* 32–33.
7. For an overview of dualism in the philosophy of mind, see Howard Robinson, "Dualism," in *The Stanford Encyclopedia of Philosophy*, ed. E. N. Zalta (Fall 2017 Edition).
8. Jack Goody, *The Domestication of the Savage Mind* (Cambridge: Cambridge University Press, 1977).
9. George Thomson, *Studies in Ancient Greek Society, vol. II, The First Philosophers* (London: Lawrence and Wishart, 1955).

10. *Ηράκλειτος, Άπαντα,* introduction, translation and commentary by Athanassios Kyriazopoulos (Athens: Κάκτος, 1995), 20–21. Characteristic on the subject are fragments DK B8, B10, B15, B50, B53, B80 and B111 of the Heraclitan work *On Nature*.
11. Ibid., 171. See also fragments DK B30, B32 and B48.
12. Robert Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art, Papers on Architecture, 1977), 23.
13. Ibid., 23.
14. There are numerous monographs and exhibition catalogues that present Breuer's architecture along with interesting historical data. For monographs, see, for instance, Tician Papachristou, *Marcel Breuer: New Buildings and Projects* (New York: Praeger, 1970); Robert F. Gatje, *Marcel Breuer: A Memoir* (New York: Monacelli Press, 2000); David Masello, *Architecture Without Rules: The Houses of Marcel Breuer and Herbert Beckhard* (New York, London: W.W. Norton & Company, 1993); Isabelle Hyman, *Marcel Breuer, Architect. The Career and the Buildings* (New York: Harry N. Abrams, 2001); Victoria M. Young, *Saint John's Abbey Church: Marcel Breuer and the Creation of a Modern Sacred Space* (Minnesota: University of Minnesota Press, 2014). Exhibition catalogues include Henry-Russell Hitchcock, *Marcel Breuer and the American Tradition in Architecture* (Cambridge, MA: Special Collections Rare, Loeb Design, Harvard University, 1938) and Peter Blake, *Marcel Breuer: Architect and Designer* (New York: Museum of Modern Art, 1949). However, there are few studies that launch a critique, and those that do focus mainly on the question of scale, identifying a weakness in his larger projects which, it is claimed, is due to his education as a furniture designer – see William H. Jordy, *American Buildings and Their Architects: The Impact of European Modernism in the Mid-Twentieth Century* (New York: Doubleday, 1972); Joachim Driller, *Breuer Houses* (London: Phaidon Press, 2000). There has also been some criticism of his work in the context of the influence of former Bauhaus masters in the United States (see William H. Jordy, "The Aftermath of the Bauhaus in America: Gropius, Mies and Breuer," in *The Intellectual Migration: Europe and America, 1930–1960*, eds. D. Fleming and B. Bailyn (Cambridge, MA: Harvard University Press, 1969); Klaus Herdeg, *The Decorated Diagram: Harvard Architecture and the Failure of the Bauhaus Legacy* (Cambridge, MA: MIT Press, 1983)) or of late modernism (Lewis Mumford, *The Highway and the City* (New York: Harcourt, Brace & World, 1963); Charles Jencks, *The New Moderns: From Late to Neo-Modernism* (New York: Rizzoli, 1990)).
15. H. M. Wingler, *The Bauhaus. Weimar Dessau Berlin Chicago* (Cambridge, MA: MIT Press, 1969).
16. Marcel Breuer Papers, AAA, Series 4.1: Breuer's interview in *Les Archives du XXième Siecle*, 1974.
17. Wingler, *Bauhaus*, 45.
18. Walter Gropius would say later that "The preliminary course of the Bauhaus curriculum and the subsequent experiences in the workshop had more to do with Breuer's finding himself as a creative artist than any other influence," (Walter Gropius to Peter Blake, January 10, 1949, Breuer file, MoMA).
19. Johannes Itten, *Design and Form, The Basic Course at the Bauhaus,* rev. ed. (London: Thames and Hudson, 1975 [1963]), 12.
20. Hyman, *Marcel Breuer, Architect*, 43. "[…] je ne me sentais pas très harmonieux avec Itten," declared Breuer, in his interview in *Les Archives du XXième siècle,* 1974, a production of ORTF (Office de Radiodiffusion télévision Française), in Marcel Breuer Papers, AAA, Series 4.1.
21. Rose-Carol Washton Long, "Expressionism, Abstraction, and the Search for Utopia in Germany," in *The Spiritual in Art: Abstract Painting 1890–1985* (Los Angeles and New York: Los Angeles County Museum of Art and Abbeville Press, 1986), 212.
22. Walter Gropius, circular, 3 February 1922, in Wingler, *Bauhaus*, 51–52.

23. As Gropius wrote regarding Breuer, "his preoccupation has always been structural and I don't remember him to have been under anyone's spell for long," Walter Gropius to Peter Blake, January 10, 1949, Breuer file, MoMA.
24. Marcel Breuer Papers, AAA, Series 6.2: "On Reorganization of the Bauhaus," 1922.
25. Le Corbusier expressed something very similar concerning the application of the scientific approach to problem-solving to architecture in *Vers une architecture*, previously published in the journal *Esprit Nouveau* – see Le Corbusier, *Vers une architecture* (Paris: Éditions Crès, Collection de "L'Esprit Nouveau," 1923), for example 113, 159.
26. Washton Long, "Expressionism, Abstraction, and the Search for Utopia in Germany," 212.
27. Breuer's interview in *Les Archives du XXième Siècle* (Marcel Breuer Papers, AAA, Series 4.1).
28. In the second part of his seminal book, *Concerning the Spiritual in Art* (1914), Kandinsky includes a section on "The Language of Form and Colour" in painting, based on the relation both between color and form, and between two basic antithetical pairs, namely, warm and cold, light and dark – see Wassily Kandinsky, *Concerning the Spiritual in Art*, trans. and with an introduction by M. T. H. Sadler (New York: Dover Publications, 1977), 36.
29. Speech at the Klee Symposium held at the Museum of Modern Art, February 2, 1950 (Marcel Breuer, AAA, Series 6.1).
30. Paul Klee, "Towards a Theory of Form-Production," in *Paul Klee: Notebooks Vol. 1: The Thinking Eye*, ed. J. Spiller (London: Lund Humphries, 1961), 15.
31. From the introduction by Sibyl Moholy-Nagy to Paul Klee, *Pedagogical Sketchbook* (London: Faber and Faber, 1953), 8.
32. Ibid., 43.
33. Kandinsky, *Concerning the Spiritual in Art*, 43.
34. Walter Gropius, *The New Architecture and the Bauhaus*, trans. P. M. Shand (Cambridge, MA: MIT Press, 1965), 23. See also his article "The Theory and Organization of the Bauhaus" (translation of "Idee und Aufbau des Staatlichen Bauhauses Weimar"), published in 1923 at the Bauhausverlag.
35. Evangelia Tsilika, *Η σχέση επιφάνειας-βάθους και ο δρόμος της μάσκας στην αρχιτεκτονική του 20ου αιώνα. Η περίπτωση του Marcel Breuer* [The Relation Between Surface and Depth and the Way of the Mask in 20th Century Architecture. The Case of Marcel Breuer] (PhD diss., Athens: National Technical University of Athens, 2008), 99–115.
36. See the constitutional program of the Bauhaus school in Weimar, April 1919 (Wingler, *Bauhaus*, 31).
37. Marcel Breuer Papers, AAA, Series 6.1: "Where do we stand?"
38. Sigfried Giedion, *Building in France, Building in Iron, Building in Ferroconcrete* (Santa Monica, CA: Getty Center for the History of Arts and the Humanities, 1995 [1928]), 87, 94–96, 100, 183.
39. Ferdinand de Saussure, *Cours de linguistique générale*, C. Bally and A. Sechehaye (Lausanne and Paris: Payot, 1916), English translation W. Baskin, *Course in General Linguistics* (Glasgow: Fontana/Collins, 1977). Once again, this idea can be found first in Heraclitus. As stated in a fragment of his work *On Nature*: "Wisdom is only one thing: to know that reason [ορθὸς λόγος] rules everything through their inner relationships" (DK B41. *Ηράκλειτος, Άπαντα*). It is perhaps interesting to note that Kyriazopoulos classifies Heraclitus as a materialist philosopher, together with the Miletian School of philosophy (Thalis, Anaximandros, Anaximenis), in distinction from the idealists of the Eleatic School (Xenophanis, Pythagoras, Parmenidis) (*Ηράκλειτος, Άπαντα*, 279).
40. Claude Lévi-Strauss, *La pensée sauvage* (Paris: Librairie Plon, 1962), 210.
41. Heinrich Wölfflin, *Art History: The Problem of the Development of Style in Later Art* (New York: Dover Publications, 1932), and Erwin Panofsky, *Gothic Architecture and Scholasticism* (New York: Meridian Books, 1957).
42. Marcel Breuer Papers, AAA, Series 6.1: "History of Modern Architecture," not dated. It is assumed that this was part of a lecture delivered at an American university; from its content, it seems that it was written just after the war.

The lecture starts as follows: "There are three epochs of the architecture we call modern. First, the revolutionary, after the first world war, ending about 1925–1930. The second, somewhat interrupted by the war, but going on now, is a period of 'interlocking philosophy and realization'. Third will be the period of broad utilization, – probably identical with the 'Post War' period." Breuer considered himself as belonging to the second epoch.

43. All biographical notes on Breuer can be found in Hyman, *Marcel Breuer, Architect.*
44. See for example his projects *Veterans' House A and B* (1945, not built).
45. The type, for Breuer, precedes form and defines it. It does not repeat itself as an image but acts as a set of rules that can give rise to works that are not alike, as it creates dialectical relationships with construction, function, aesthetic perceptions, place and society.
46. Marcel Breuer Papers, AAA, Series 8.
47. Ibid., Breuer's own terminology.
48. In his residences, Breuer was trying to provide all the aspects of housing he thought a young American family was looking for. According to Peter Blake, he preferred to respond to actual rather than theoretical or hypothetical issues, to "real problems, real people and real sites" (Peter Blake, *No Place like Utopia: Modern Architecture and the Company We Kept* (New York: Knopf, 1993), 138).
49. Driller, *Breuer Houses*, 38.
50. Paul Rudolph, "Rudolph," in *Perspecta 7*, The Yale Architectural Journal (1961), 51.
51. Marcel Breuer Papers, AAA, Series 6.1: "On Form and Function."
52. Marcel Breuer Papers, AAA, Series 6.1: "What is Happening to Modern Architecture?"
53. Marcel Breuer, *Buildings and Projects, 1921–1961*, captions and introduction by Craston Jones (New York: Praeger, 1962).
54. Breuer enthusiastically shared Gropius's interest in American methods of construction and especially in lightweight balloon frame construction. As Hitchcock observes, the influence of these methods allowed Breuer and Gropius to develop new architectural forms, new departures for the Modern Architecture they brought with them (Hitchcock, *Marcel Breuer and the American Tradition in Architecture*).
55. Breuer, *Marcel Breuer: Sun and Shadow,* 34. As Breuer stated in a panel discussion in 1961, he was critical of the unreasonable and unilateral use of glass "as a universal enclosure of space" because, quite simply, "there are also many human needs that our glass wall does not fulfil." However, he appreciated all the advantages offered by the new use of the material and the emergence of phenomena such as "the transparency of architecture; the interior space connected with the exterior one, at least visually; the flow of space through a structure and between its walls [...]" (Marcel Breuer Papers, AAA, Series 2: "Individual Expression Versus Order: The Issue in Architecture Today," Architectural League of New York, 1961).
56. As Breuer explains, "when stone is used in a wall, the aim is not to evoke some notion of rock, but to build a clear-cut slab made of stone because stone is a good and durable and texturally pleasant material. It should be clear that this is a wall built by a mason, executing drawings with dimensions and a given geometry; it is not a grotto or part of a romantic anachronism." (Marcel Breuer Papers, AAA, Series 2: "Individual Expression Versus Order").
57. Marcel Breuer Papers, AAA, Series 6.1: "What is Happening to Modern Architecture?"
58. His first trip to Greece was in 1931 with Herbert Bayer (Hyman, *Marcel Breuer, Architect,* 70). Breuer visited Greece at least four more times: in 1934 when he met Stamos Papadakis, in 1958 with I. M. Pei and Dr. Van der Wal, in 1961 with Hamilton Smith on their way back from Pakistan, and one last time, in 1967 or 1969 (Marcel Breuer Papers, AAA, Series 2). Highly impressed by ancient Greek architecture, Breuer also noted the contrast between the extroverted character of its public buildings and the intense introspection of its houses (Breuer, *Marcel Breuer: Sun and Shadow*, 33).
59. Breuer, *Marcel Breuer: Sun and Shadow,* 40.

60. For a more thorough study of the way in which the spaces of the Bijenkorf are occupied, see Evangelia Tsilika, "Reinventing the Department Store in Rotterdam: Breuer's Bijenkorf 1953–57," in *Investigating and Writing Architectural History*, ed. M. Rosso (Torino: Politecnico, 2014), 799–811.
61. Evangelia Tsilika, "The Creation of Civic Identity in Post-war Corporate Architecture: Marcel Breuer's Bijenkorf in Rotterdam (1953–57)," in *Shopping Towns Europe,* eds. J. Gossay and T. Avermaete (London: Bloomsbury, 2016), 193–194. This is a response to the call for a "New Monumentality" made by Sigfried Giedion, Josep Lluis Sert, and Fernand Léger, and formulated during the war as "Nine Points of Monumentality" (1943). "The reconquest of the monumental expression" for Giedion would be the most difficult challenge of modern architecture (see Sigfried Giedion, "The Need for Monumentality," in *New Architecture and City Planning: A Symposium*, ed. Paul Zucker (New York: Philosophical Library, 1944), 552).
62. Different functions were housed inside the office annex, ranging from offices and private boutiques or showrooms to mechanical plant.
63. Door handles, many pieces of furniture, and the temporary construction site kiosk for the Bijenkorf were also generated from the idea of the honeycomb.
64. Tsilika, "The Creation of Civic Identity in Post-war Corporate Architecture," 183–195.
65. "Notes and Observations on a Visit of Mr. Breuer to St. John's, April 20, '53," typescript, Folder 4, Box 5, Building Committee, Comprehensive Plans and Reports, St. John's Abbey Archives, Collegeville, MN.
66. Breuer, *Marcel Breuer: Sun and Shadow,* 35.
67. It should be noted that the implementation of structuralism as a method both in architecture and in architectural criticism did not occur consciously and explicitly until the middle of the twentieth century. According to K. Michael Hays, the adoption of de Saussure's principles and methods by intellectuals from diverse fields – intellectuals such as Claude Lévi-Strauss, Roland Barthes or Luis Althusser – was far more influential for architects than the work of de Saussure himself: "What attracted the architectural community to structuralism were those pronouncements that seemed most general and trans-posable to the problems of architectural interpretation. In particular, Levi-Strauss's arguments that beneath the immense heterogeneity of myths are certain constant universal structures to which any particular myth can be reduced [...]," K. Michael Hays, *Unprecedented Realism: The Architecture of Machado and Silvetti* (New York: Princeton Architectural Press, 1995), 2, 18.

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