Seeking Dimensions of Space and Time in Naum Gabo's Public Monuments, 1951–1973

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#### **INTRODUCTION**

#### **Envisioning Monumentality**

During his lifetime and since his death in 1977, the modern Russian artist Naum Gabo has widely been known for his contributions to the reinvention of sculpture. The artist first experimented with a new sculpture founded upon forms of space during his time living in exile in Norway between 1914 and 1917, after having only narrowly escaped the outbreak of World War One in Germany, where he was a student of medicine, neo-Kantian philosophy, and art history at the University of Munich. Gabo's earliest constructions of the Norway period, known as the *Constructed Heads* (fig. 1), showcase the artist's application of a constructive technique in which, instead of carving, he built up his sculpture out of various planar material elements brought together in such a way so as to enclose volumes of spatial depth as the primary element of the sculpture's form.

This earliest production in many ways anticipated Gabo's first published theoretical text, a text which he would expand upon, clarify, and refer to as the basis of his practice for the rest of his career. After returning to Russia at the war's end in 1917, the young artist Naum Gabo announced to the world his ambitions for a radical new art for modern life on August 5<sup>th</sup>, 1920, on the occasion of an outdoor exhibition of avant-garde painting and sculpture on Tverskoi Boulevard in Moscow. At the same time as his sculptures were being unveiled to the public for the first time, Gabo pasted his *Realistic Manifesto* around the surrounding streets and declared, "Space and time are reborn for us today. Space and time are the only forms on which life is built and hence art must be constructed ... *The realisation of the world in the forms of space and time*  *is the only aim of our pictorial and plastic art*."<sup>1</sup> Throughout his artistic career, Gabo would maintain a remarkable commitment to incorporating perceptions of space and time as fundamental elements of his sculpture.

Since 1920, Gabo's pedestal sculptures have been praised for the ways they incorporate modern transparent materials, such as plastics and glass, to bring awareness to the open and penetrating volumes of space within which all objects exist and which exist within all objects.<sup>2</sup> He is also known for his radical applications of kinesis within his sculpture; one of his earliest sculptures, the *Kinetic Construction* of 1920, was actually motorized, and almost every work he ever created thereafter incorporates a prominent imagined sense of movement through the dynamic forms of its construction.<sup>3</sup> Contrary to his reputation for exhibiting small works indoors, his *Realistic Manifesto* is quite explicit about the artist's initial vision for an art that would be incorporated into public spaces outside of art galleries:

In the squares and in the streets we are placing our work ... Art should attend us everywhere that life flows and acts ... at the bench, at the table, at work, at rest, at play; on working days and holidays ... at home and on the road ... in order that the flame to live should not extinguish in mankind.<sup>4</sup>

From beginning to end, attending art to every level of life became a major goal of Gabo's artistic production. In the 1920s alone, as the artist was living first in Russia from 1917 to 1922, then in Berlin from 1922 to 1933, Gabo created a plethora of models for large-scale monuments

<sup>&</sup>lt;sup>1</sup> Gabo, *Realisticheskii Manifest*, 1920, trans. by Naum Gabo, 1957. Reprinted in Hammer and Lodder, *Gabo on Gabo* (New Haven: Yale University Press, 2000), pp. 24–28.

<sup>&</sup>lt;sup>2</sup> For a detailed analysis of Gabo's developing use of transparent materials in his gallery objects, see Anne Barlow, "The Potential for Transparency," in *Naum Gabo: Constructions for Real Life*, (London: Tate, 2020), pp. 73–80.

<sup>&</sup>lt;sup>3</sup> For in-depth documentation of the development of Gabo's 1920 *Kinetic Construction*, a motorized sculpture demonstrating his principles of kinesis outlined in the *Realistic Manifesto*, see Hammer and Lodder, *Constructing Modernity: The Art and Career of Naum Gabo* (New Haven: Yale University Press, 2000), pp. 69–70.

<sup>&</sup>lt;sup>4</sup> *Gabo on Gabo*, p. 28.

designed to live out in the open world, such as *Model of a Monument to an Observatory*, *Monument for an Institute of Physics and Mathematics*, and *Monument for an Airport*. In 1931, he even submitted a monumental architectural design to the Palace of the Soviets competition, officially organized by the Russian government as they sought a new central administrative building for their government.<sup>5</sup> Unfortunately, none of these prewar monumental projects were ever realized.

It was not until after Gabo had moved to Connecticut from the United Kingdom in 1948 that the artist received and completed a commission for a work of monumental scale. Installed in 1951, the *Baltimore Construction* at the Baltimore Museum of Art is the first sculpture by Gabo to incorporate in its design the specifics of its site—in this case, a stairwell of a public art museum. Remarking on the achievement of the work, Gabo said in 1951, "There is nothing more satisfactory for an artist than to see his work in a place with a resonance as great as public places have, and such an event is still more exciting for an artist when it is the first time in his life."<sup>6</sup> In the ensuing decades, Gabo completed a handful of other monumental site-specific projects. In 1956, he designed and installed a relief sculpture for an office building in the Rockefeller Center in New York City. In 1957, he completed an 85-foot tall, free-standing construction, sited outside a major department store designed by Marcel Breuer on the main avenue of downtown Rotterdam. Beginning in 1969, he began producing a series of enlargements of an earlier 1937 model, *Spheric Theme*, completing in total five identical large-scale editions, now scattered

<sup>&</sup>lt;sup>5</sup> See Sir Norman Foster, "Palace of the Soviets Competition," in *Naum Gabo: Constructions for Real Life*, pp. 53–63. This text was written while Foster was a master's student in architecture at Yale from 1961–2 and reprinted in the Tate's recent retrospective catalogue. He knew Gabo personally while living in Connecticut.

<sup>&</sup>lt;sup>6</sup> Gabo, Typescript drafts of a dedication delivered at Baltimore for his 'Baltimore Construction Suspended in Space,' TGA 9313/2/2/18, Tate Gallery Archives, London.

across the world between Japan, the United States, Germany, and Norway. Finally, in 1973, he finished his last monumental commission, a rotating fountain based upon a model of 1928, sited on the bank of the Thames in London in the garden of St. Thomas' Hospital. These five monuments of the postwar period amount to a remarkably small body of work, especially when one considers that Gabo declared himself a public artist from the outset of his career in 1920. Despite the overwhelming challenges Gabo faced in seeking commissions, it is not my goal to dwell in this thesis on the innumerable reasons why he might not have received the number of public projects he would have wanted; such an argument would require more of an analysis of the mechanisms of 20<sup>th</sup> century art patronage and less of an analysis of what I find most important: the monuments themselves.

#### **Repositioning the Monuments**

My research seeks to reposition Gabo's monuments as the ultimate and culminating realizations of the artist's vision first expressed in his models and elaborated in his theory beginning in 1920. Much has been written about Naum Gabo and his art since his death in 1977, including on his monuments; only the extant literature has devalued Gabo's monumentality by failing to acknowledge how the added dimensions of scale and site-specificity allowed for the artist to finally and fully realize perceptions of space and time for the modern public. The first major publication on the artist to appear after his death was a catalogue for a retrospective held at the Dallas Museum of Art in 1985, and its main essay, written by historian Steven A. Nash, provides documentation and analysis of Gabo's five monuments. However, Nash's essay does not demonstrate the ways that Gabo's monuments function as culminating realizations of the vision for modern art that the artist established as early as 1920. For example, discussing the

1951 *Baltimore Construction*, Nash writes, "All the parts share a looping, ribbon-like movement and interact to form distinctly different patterns as one moves around and up past the sculpture."<sup>7</sup> Nash does not explicitly make the connection between this effect of the sculpture and its role as a function of Gabo's mission to realize perceptions of the forms of space and time in public sculpture. Thirty-one years prior to Gabo's *Baltimore Construction*, the artist established "*kinetic rhythms as the basic forms of our perception of real time*," essentially proposing that perception of movement formed the foundation for a visual realization of time. Thus, Gabo believed in 1920 that modern sculpture should move, or at least appear to.<sup>8</sup> I believe the *Baltimore Construction* to be Gabo's fullest realization of perceptions of time in terms of movement, and that the commission is significant as the first full achievement of a goal the artist established for himself in 1920. In my research, I will focus on traversing the gaps in historical time between Gabo's early theoretical writings and his later monumental realizations to show the ways in which these monuments were the most successful works in the artist's oeuvre, when considered in the artist's own terms.

Fifteen years after assembling the catalogue raisonné for Gabo's 1985 retrospective, art historian Christina Lodder, along with co-author Martin Hammer, assembled the most comprehensive monograph to date of the artist's life and work in a book titled *Constructing Modernity: The Art and Career of Naum Gabo*. Because of the massive scope of the 400-plus page text and its chronological organization, documentation of Gabo's prewar theory and models are separated from postwar monuments by years of extensive biography. In the authors' documentation of the history of Gabo's final commission for *Revolving Torsion, Fountain*,

<sup>&</sup>lt;sup>7</sup> Steven A. Nash, "Sculptures of Purity and Possibility," in *Naum Gabo: Sixty Years of Constructivism* (Munich: Prestel Verlag, 1985), p. 40.

<sup>&</sup>lt;sup>8</sup> *Gabo on Gabo*, p. 28.

unveiled in 1976, the authors begin by stating that, while Gabo was exhibiting at the Tate Gallery in 1966, he had told director Norman Reid that "he had always dreamt of building his *Torsion* construction of 1929 as a fountain."<sup>9</sup> Despite the authors' remark on the status of Gabo's 1976 monument as an enlarged adaptation of a forty-four year old model, their commitments to biography and chronology lead them to focus strictly on the years of Gabo's life and work between 1966 and 1976 in which the commission itself took place. In this way, this text by Hammer and Lodder treats the gap in time between Gabo's theory and his monuments in much the same way as Nash's 1985 essay, and monuments like *Revolving Torsion, Fountain*, are not able to be fully appreciated as successes in the artist's terms.

Most recently, historian Anne Barlow outlined in the Tate St. Ives' 2020 Gabo retrospective the central role of transparency in the expression of Gabo's view "that constructive sculpture should not only be three-dimensional, but four-dimensional in terms of the experience of a work in time."<sup>10</sup> By rendering Gabo's sculpture 'four-dimensional,' transparency plays an integral role in realizing perceptions of both space and time. But Barlow only discusses transparency in Gabo's smaller scale works. She uses Gabo's 1949 *Linear Construction in Space No. 2* as an example of "the refinement of his ideas around form and kinesis that began with the opening up of the sculptural 'core' in *Constructed Head No. 2* c. 1916 and the apparent dematerialisation of *Kinetic Construction: Standing Wave* 1919–1920."<sup>11</sup> As she compares Gabo's 1949 transparent sculpture with his earliest works, Barlow suggests that Gabo's practice has evolved over time to realize more fully the ideas the artist had formulated from his very beginnings. I want to take Barlow's claim a step further and posit how the fullest realizations of

<sup>10</sup> Anne Barlow, "The Potential of Transparency," p. 73.

<sup>&</sup>lt;sup>9</sup> Hammer and Lodder, Constructing Modernity: The Art and Career of Naum Gabo, p. 462.

<sup>&</sup>lt;sup>11</sup> Ibid.

Gabo's ideas were achieved when the artist was finally given opportunities to construct his transparent sculptures as large-scale, site-specific works in the public, beginning in 1951.

#### **Criteria for Success**

An important aspect of my investigation into Gabo's monuments will involve situating each of the works as responses to the problems presented within the history of wider theoretical debates on modern monumentality. From a set of essays published in the years leading up to Gabo's first commission in 1951, I will source a set of criteria for the levels of success of his postwar monuments. These criteria will play an important role alongside Gabo's own definitions of modern sculpture as I investigate the artist's ability to transition from model to monument in the postwar. An important part of my research will be concerned with how Gabo's ideas in the postwar period adapted to, answered, or disregarded the demands of the new monumentality outlined by historians and theorists of the 1930s and 40s leading up to Gabo's first commission.

The first especially relevant historical definition of monumentality to Gabo comes from the artist's close friend, American cultural theorist Lewis Mumford. In 1937, Mumford contributed an essay to Gabo's own single-issue journal, *Circle*, titled—somewhat dramatically— "The Death of the Monument." Mumford's essay outlines the human history of monumentality and argues why, as a tradition, the monument is wholly incompatible with modern life. He locates the tradition of monumentality within the diametric of life and death, writing that, "The classic civilizations of the world, up to our own, have been oriented toward death and fixity … the dead hand felt frustrated unless it could keep within its grasp the fate of the living."<sup>12</sup> Mumford argues that this attachment to permanence and death is grossly misaligned with the new modern way of life, since cultural attachments have shifted from the dead past to the living, everchanging present and future:

[T]he most radical change in our modern cosmos has come about through our changed conception of death and immortality: for us, death is an episode in life's renewal, the terminus of a radical maladaptation ... Instead of being oriented toward death and fixity, we are oriented toward life and change: every stone has become ironic to us for we know that it, too, is in process of change, like the 'everlasting' mountains.<sup>13</sup>

The permanence and fixedness of the traditional monument, in contrast to the ephemerality and constant change of modernity, led Mumford to ultimately assert that "the very notion of a modern monument is a contradiction in terms: if it is a monument, it cannot be modern, and if it is modern, it cannot be a monument."<sup>14</sup> Despite his ultimate claim, throughout the following chapters, I will not hold on to Mumford's claim that monumentality is categorically impossible for the modern artist. Justifying this dismissal is the fact that Mumford himself did not hold onto this claim—in 1957, he had high praise for Naum Gabo's *Bijenkorf Construction* in two articles written for the New Yorker.<sup>15</sup> Overall, what I take away from Mumford's 1937 argument is the need for new monuments to give expression to change in place of traditional notions of fixity. Mumford did not at first believe that it would be possible for a monument achieve such an expression, but he did not have examples to cite in his essay at the time. My ensuing analysis of

<sup>&</sup>lt;sup>12</sup> Mumford, "The Death of the Monument," *Circle: International Survey of Constructive Art* (1937), p. 263.

<sup>&</sup>lt;sup>13</sup> Ibid, pp. 263–4

<sup>&</sup>lt;sup>14</sup> Ibid, p. 264.

<sup>&</sup>lt;sup>15</sup> I will return to this point of Mumford's change of mind in my discussion of Gabo's *Bijenkorf Construction* in Chapter Two. See Mumford, "A Walk through Rotterdam, *The New Yorker*, October 12, 1957; Mumford, "The Cave, the City, and the Flower," *The New Yorker*, November 2, 1957.

each of Gabo's monuments will test them against Mumford's criterion of change, looking critically at the works to ask how they give visual expression to this idea within their sites.

In 1944, the historian Siegfried Giedion published an article titled "The Need for a New Monumentality."<sup>16</sup> In many ways, the text was a response to Mumford's claims against the possibility of monumentality.<sup>17</sup> Giedion clearly does not share the American's pessimism towards the idea of the modern monument, arguing instead that, "[e]very period has the impulse to create symbols in the form of monuments." Monuments, to Giedion, are a requirement for any culture to thrive, and modern culture is no exception. His text culminates in a dream for how the modern monument should ideally remain alive within present and future urban environments:

[N]ewly created urban centers should be the site for collective emotional events, where the people play as important a role as the spectacle itself, and where a unity of the architectural background, the people, and the symbols conveyed by the spectacles, will be achieved.<sup>18</sup>

Ultimately for Giedion, monumentality was less about the monument itself and more about the "spectacle" or "emotional event" that it created as a symbol within an integrated architectural environment for an actively engaged audience. In the following investigation of Gabo's monuments, I will look intentionally for the ways in which they act as "emotional events,"

<sup>&</sup>lt;sup>16</sup> Giedion also contributed to *Circle* with an essay titled "Construction and Aesthetics: Notes on Reinforced-Concrete Bridges by Swiss Engineer, Robert Maillart."

<sup>&</sup>lt;sup>17</sup> In the marginalia of the 1958 reprint of "The Need for a New Monumentality," found in Giedion's *Architecture, You and Me*, Giedion cites a later article by Mumford, published in 1949 for the *Architectural Review*, in which Mumford restated some of his sentiments of the earlier 1937 essay for *Circle*. He quotes Mumford saying, "An age that has deflated its values and lost sight of its purposes will not produce convincing monuments," before Giedion himself adds, "This is certainly true for the monuments of the ruling taste, but is not when speaking of the work of the creative artists of our time such as Brancusi, Antoine Pevsner, Hans Arp, Naum Gabo, Alberto Giacometti, or Picasso." See Giedion, *Architecture, You and Me: The Diary of a Development*, 1958, pp. 22–39; Mumford, "Monumentalism, Symbolism and Style," *Architectural Review*, 1 April 1949, pp. 173–180.

interpreting the basic idea of the event as being an experience which unfolds in time and space. I will be carefully considering Gabo's public works as such, as they work to capture space and time within the perceptions and feelings of an engaged public. I will also pay particular attention to Giedion's criterion of unity, in which the monument is said to play only a partial role in the formation of such event and must therefore be integrated into its environment to achieve its fullest effect.

In the September issue of 1948, the London-based *Architectural Review* published "In Search of a New Monumentality," a symposium with contributions from seven architects and historians including Siegfried Giedion and architect Walter Gropius.<sup>19</sup> Gropius's criteria for the monumental hinges upon what he terms, "the spiritual greatness inherent in the monument; that is, on the forces which stir the imagination."<sup>20</sup> This definition disregards physical scale in favor of an intangible feelings of greatness, something which I will explore in both Gabo's large and small-scale works. Giedion goes on further:

The old monument was the symbol for a static conception of this world, now overruled by a new one of relativity through changing energies. I believe, therefore, that the equivalent of monumental expression is developing in the direction of a new physical pattern for a higher form of civic life, a pattern characterized *by flexibility for continuous growth and change*.<sup>21</sup>

<sup>&</sup>lt;sup>19</sup> Giedion's contribution to the symposium was the text from his 1944 article, "The Need for a New Monumentality." Gropius's contribution is of particular interest given the architect's relationship to Gabo. Gabo was acquainted with Gropius and his student Marcel Breuer through the Bauhaus, from the time when he was living there between 1922 and 1932 after having first emigrated Russia. In 1954, when Breuer was commissioned by Rotterdam's city planner to build the Bijenkorf department store, he was personally involved in bringing Gabo onto the project to construct a monumental sculpture outside the building. This was to be the *Bijenkorf Construction*, which will be the focus of Chapter Two of this thesis.

<sup>&</sup>lt;sup>20</sup> Ibid, p. 127.

<sup>&</sup>lt;sup>21</sup> Ibid.

Gropius, like Mumford, places emphasis on the need for monumental expression to be characterized by continuous change. To this, he adds the notions of growth and relativity as well. With Gropius's criteria in mind, I will approach Gabo's monuments with an eye for the ways that the dynamism of his constructions enable them to realize growth, and how their presence in their sites brings an awareness to the relative energies of monument, viewer, and environment.

All of these ideas expressed in the 30s and 40s—growth, relativity, and change—are functions of movement. As I previously noted, Gabo declared in 1920 that movement, or "*kinetic rhythms*," is "*the basic [form] of our perception of real time*."<sup>22</sup> The following chapters will demonstrate the ways that Gabo's monuments, by capturing expressions of growth, relativity, and change in solid materials, create the fullest realizations within Gabo's entire oeuvre of our perceptions of time.

#### Methodology

The core element of my research into Gabo's monuments has been my site visits. Photographs of Gabo's five monumental works cannot speak to their existence across the four dimensions of time and space; the photograph reduces them to one moment and one perspective, disconnected from the continuum of motion that is needed in order to fully grasp them as the experiences they are made to be.

With that said, I made site visits to three of Gabo's five monumental commissions: the *Baltimore Construction*, the *Bijenkorf Construction*, and *Revolving Torsion, Fountain*. I chose only these three mainly because of accessibility issues to the specific and original sites of Gabo's monuments. The two works which I did not visit are either no longer in their original site, or they

<sup>&</sup>lt;sup>22</sup> Gabo, Realisticheskii Manifest, 1920. Trans. Christina Lodder in Gabo on Gabo, 2000.

were never site-specific, and thus not monumental in the sense that I am most interested to explore in my research. As mentioned previously, Gabo's enlargements of Spheric Theme exist in numerous identical editions scattered across the globe. As identical sculptures which Gabo often produced on-demand for different patrons at the end of his career, the Spheric Theme enlargements do not share the intentional integration into their respective sites that his other monuments do, and as such I find that the "unity" between "the architectural background, the people, and the symbols conveyed" is less essentially meaningful.<sup>23</sup> The Spheric Theme's detachment from specificity of place is more severe in certain instances, such as in Princeton and Oslo, where both of those editions have suffered from damage and have been subsequently repaired and moved from the locations which Gabo was commissioned for.<sup>24</sup> It would have also proved a serious logistical challenge to view each of the Spheric Themes as they are today in Japan, Norway, Germany, and the United States. Concerning the other work which I did not visit, Gabo's 1956 Bas-relief for the U.S. Rubber Company Building is no longer in the U.S. Rubber Company building. It has been listed as sold to a private owner at a 2015 auction on the website of Sotheby's, and as a result was inaccessible to me (and the public as a whole) during my research.<sup>25</sup>

I also visited archives in Baltimore, Connecticut, and London, where I accessed Gabo's lectures, unpublished notes and essays dating as far back as the 1930s. From these earlier lectures, along with Gabo's published essays of the 1920s, I have been able to sketch the

<sup>&</sup>lt;sup>23</sup> Giedion, Architecture, You and Me, p. 39.

<sup>&</sup>lt;sup>24</sup> For the tumultuous history of conservation, replacement, and relocation of the *Spheric Theme* sent to Oslo, see *Constructing Modernity*, pp. 450–452 and *Gabo: Sixty Years of Constructivism*, p. 225. For a similar account of the *Spheric Theme* sent to Princeton, see *Gabo: Sixty Years of Constructivism*, p. 226.

<sup>&</sup>lt;sup>25</sup> Sotheby's was unable to specify to whom or to where the *Bas-relief* was sent when I contacted them via email. As it stands, its whereabouts are unknown.

contours of Gabo's "vision of the possible."<sup>26</sup> As he gave these early lectures, wrote essays and manifestos, Gabo could not have known, for reasons outside of his control, how this vision would eventually realize itself. Only now, looking back through time, through Gabo's extant monuments and even further to his original descriptions of his monumental vision, can it become clear that Gabo had been a monumental artist since 1920. And vice versa: looking from Gabo's writings up to his (significantly later) realizations of his monumental vision has enabled me to clarify what exactly the artist meant when he wished for an art in the squares which would realize our perceptions of space and time. As historian George Kubler once said, "Many historical events, like astronomical bodies, also *occur* long before they appear."<sup>27</sup> My documentation of Gabo's prewar theoretical writings will serve the purpose of exposing the historical event that was the artist's invention of a public art founded on the forms of space and time. This event first occurred in 1920 in the form of a vision; not until thirty-one years later, when time had muddied this first occurrence, did it occur again in visible form, no longer as vision, but as real.

In the following chapters, it is my goal to traverse the historical gap between theory and practice that exists in Gabo's career as a monumental artist—a gap which thus far has not been adequately traversed, resulting in the misattribution of Naum Gabo as a sculptor of small-scale spatial constructions for the pedestal. I believe strongly that this artist did not see space and time on a pedestal; he saw them everywhere, in every moment, and he made them visible for us in our stairwells, on our streets, and in our gardens—in the real places where we live.

<sup>&</sup>lt;sup>26</sup> George Kubler, *The Shape of Time: Remarks on the History of Things*, p. 45.

<sup>&</sup>lt;sup>27</sup> Ibid, p. 17.

My investigation of Gabo's entrance of monumental constructions into public spaces treats each monument as a brand of knowledge communicated solely through the appearance (or appearances) of the actual works themselves within their respective sites, in the vein of phenomenological philosophy. Such an approach aligns itself suitably to an analysis of Gabo's sculpture, especially when one considers that the artist saw the visual or phenomenal experience of his sculpture as the primary documents of his own aesthetic theory founded on the forms space and time. In a key lecture of 1948, titled "On Constructive Realism" and delivered at Yale University, Gabo expressed his personal plight as the artist turned theoretician:

It has always been my principle to let my work speak for itself, following the maxim that a work of art does not need to be explained by its author ... However, I have often been called upon to use words to supplement the mute medium of profession. I confess, that I was never happy about it.<sup>28</sup>

The fact that the artist wrote his *Manifesto* in Russia only after having begun his sculptural experiments in Norway testifies to the fact that Gabo thought primarily in sculptural and not philosophical terms. Throughout his career, Gabo's written theory followed posterior to his developing experiments in his sculptural practice as justifications or clarifications for their functions as objects of experience. Treated in this way, Gabo's sculptures become the primary instruments for a new way of seeing and being in reality through our subjective consciousness of it provided by vision. Gabo's sculpture is thus like Merleau-Ponty says in *Eye and Mind*: "It offers to our sight, so that it might join with them, the inward traces of vision, and because it offers to vision its inward tapestries, the imaginary texture of the real."<sup>29</sup> To borrow another term from the philosopher, the viewer of Gabo's sculpture 'sees themselves seeing,' and through this

<sup>&</sup>lt;sup>28</sup> Naum Gabo, "On Constructive Realism," *Three Lectures on Modern Art* (New York: Philosophical Library, 1949), pp. 65–66.

<sup>&</sup>lt;sup>29</sup> Merleau-Ponty, "Eye and Mind," *Maurice Merleau-Ponty: Basic Writings* (London: Routledge, 2004), ed. Thomas Baldwin, p. 297.

experience generated by Gabo's spatial and dynamic forms, space and time gain the imaginary texture necessary to become real in vision.<sup>30</sup>

Gabo's monuments are especially relevant to a phenomenological interpretation in the ways that they engage the viewer's body within and throughout the specific sites of the work. It is thus important to understand the body, as Merleau-Ponty says, as "an intertwining of vision and movement."<sup>31</sup> The philosopher further describes the seeing and moving body as a locomotive engaged within its three-dimensional environment, as he writes:

In principle all of my changes of place figure in a corner of my landscape; they are recorded on the map of the visible. Everything I see is in principle within my reach, at least within reach of my sight, and is marked upon the map of the "I can." Each of the two maps is complete. The visible world and the world of my motor projects are each total parts of the same Being.<sup>32</sup>

In Gabo's monuments, the visible world of the sculpture and the world of motor projects defined by the architectural space designed to be actually moved through—collapse into one, as each was made to respond to the other within one homogenous and continuous space. The analysis of Gabo's monuments in this thesis will thus center the viewer's seeing and moving body within and through the space shared by sculpture and architecture in order to describe the phenomenal experience of the artist's monumentality integrated within specific architectural environments.

<sup>&</sup>lt;sup>30</sup> Ibid, p. 294.

<sup>&</sup>lt;sup>31</sup> Ibid.

<sup>&</sup>lt;sup>32</sup> Ibid.

#### THE BALTIMORE CONSTRUCTION

#### The Viewer in Motion

Gabo's first monument, the *Baltimore Construction*, is the most elusive sculptural form the artist ever realized. Commissioned by wealthy patron and Baltimore native Saidie A. May in 1950 and unveiled in 1951, the monument contains multitudes of visual paradoxes as it hovers restlessly between visible and invisible, material and immaterial, still and moving.<sup>33</sup> Because of the monument's constant shift in appearance in response to the viewer's movement around it, the *Baltimore Construction* is a strong response to the demands of the new monumentality, in which traditional sculptural stasis and solidity was to be substituted for experiences of growth, change, and relativity generated by aestheticized material images integrated into living environments. At the same time, the sculpture's monumentality allowed Gabo to finally realize perceptions of space and time that extended beyond the boundaries of the pedestal and into real, shared environments inhabited by both the viewer's body and monumental sculpture.

Made out of aluminum, plastic, gold, steel, and bronze, Gabo's debut monumental sculpture denies stasis by first refusing gravity. The whole object appears instead to float in the light of its two-story stairwell at the Baltimore Museum of Art, as the thin strings of steel wire which suspend the object from the ceiling are made so miniscule and yet so reflective that, visually, the suspending elements become more of light itself than material. In total, the hovering body of the sculpture, outlined by a drawing-in-space done in thin rods of baked black aluminum, extends roughly fifteen feet down from the ceiling. Framed within this spatial drawing is a diversity of materials ranging in transparency and reflectivity, from the shine of

<sup>&</sup>lt;sup>33</sup> Saidie A. May, letter to Gabo, 1 August 1949, Yale.

gold string to the near complete translucence of plastic. The visually disparate contrasts of Gabo's different materials further effects the monument's refusal to remain static in its conception; everywhere the viewer looks upon the floating, spatial object, they are made to see according to an inherently different material giving perception to unique spatial and light effects.

The site of the commission, a stairwell, enabled Gabo to conceive of the *Baltimore Construction* (figs. 2–3) as a visual realization of movement through a transitory space between the floors of the museum. From the moment the artist received the commission, the movement of the viewer through the space of the stairwell site was at the forefront of his thinking. The museum had originally asked for a kinetic construction in the stairwell—one which would actually rotate—but Gabo rejected the idea, stating, "A turning construction in a stair-well violated the functions of the stairs in as much as there is no lift and psychologically, an observer seeing a turning object, stops to see what happens next and that would lead to a total congestion on the stairs."<sup>34</sup> Considering the function of the stairwell as a space of real movement and change, Gabo wanted the experience of "what happens next" to hinge upon the viewer's actual movement—not the sculpture's. As the viewer moves along the stairwell, they realize the visual change over time of the sculpture's appearance relative to the change over time of their own bodily position in space, thus giving perception to real motion without requiring the sculpture to actually move. This reliance upon the viewer's movement through the architectural environment was not only a condition of viewing, but a formal element of the sculpture's design.

Renowned British critic and dear friend of Gabo, Herbert Read, noted the differentiation within modern sculpture between kinetic and illusionistic movement in his 1954 Mellon

<sup>&</sup>lt;sup>34</sup> Gabo, letter to Read, 30 November 1950, Herbert Read Archive, Special Collections, University of British Columbia, Victoria. Quoted in *Constructing Modernity*, p. 332.

Lectures, subsequently published as *The Art of Sculpture* in 1956, citing Gabo as an example of an artist who had incorporated both real and actual movement throughout his career. The critic cited Gabo's *Realistic Manifesto* and his 1922 *Kinetic Construction* to make an initial suggestion regarding the function of real movement as a realization of time in modern sculpture:

Movement, of course, takes place in time, is only observable as a temporal displacement of matter. That sculpture or painting should attempt to represent this element, apart from motion pictures or objects actually moving in space by virtue of applied energy, would seem to be a contradiction of possibilities. In the early days of the "constructivist" movement, several sculptural machines were made. At its simplest, the sculptural machine is an object like Naum Gabo's *Kinetic Sculpture* of 1922, which was a metal spring that vibrated and that within the area of its vibration produced a "virtual volume."<sup>35</sup>

Read correctly interprets Gabo's *Manifesto*. Time could not be visually realized without actual as opposed to imaginary—movement in the sculpture. However, Read does suggest that sculpture itself need not necessarily move, as movement could be realized through sculpture in other ways, as exemplified by Gabo's *Baltimore Construction*:

There is one other possibility, that the work of sculpture should be conceived for a moving spectator ... In 1950 Gabo was commissioned to provide a piece of mobile sculpture for the well of a staircase in a new wing of the Baltimore Museum of Art ... Let me devise, therefore, he said, a piece of sculpture that requires people to move continuously around it in a spiral direction.<sup>36</sup>

Read believed that the movement of the viewer's body was equally sufficient for a realization of elapsing time as the spectator moves in, through, and around the sculptural body.

Given the reliance upon the viewer's own movement around the object, the *Baltimore Construction* is only fully experienced *in situ*—as Read noted in his Mellon lecture when he said, "The work cannot be appreciated fully in an illustration; one must go to Baltimore and climb the

<sup>&</sup>lt;sup>35</sup> Herbert Read, "The Illustion of Movement," in *The Art of Sculpture* (1956), p. 99.

<sup>&</sup>lt;sup>36</sup> Ibid, p. 101.

stairs."<sup>37</sup> An article for the Magazine of Art published in 1952 does its best to remedy the problem of the singular perspective, juxtaposing six photographs of the work arranged in a sequence of spatial positions about the sculpture (fig. 4). The sequence begins at the bottom of the right page with a view of the sculpture from directly beneath, then proceeds counterclockwise as the photographer moves up and around the sculpture along the surrounding stairs leading from the ground floor to the second.<sup>38</sup> Both in the photographs and in life, the sculpture's black aluminum frame contrasts with the construction's internal shimmering arrangement of gold wire, bronze mesh, and transparent plastic, as well as with the white walls of the gallery to define a visible frame for the exterior of the sculpture, forming a kind of definite exoskeleton. Viewed at first from directly beneath, the black aluminum body of the construction appears as a single whole consisting of two symmetrical component parts that intersect each other at sharp right angles.<sup>39</sup> But as the viewer begins to circle up and around the construction, the frame's symmetry and angularity loses coherence as the vertical extension of the construction unfolds in perspective, revealing two curving, oblong forms which are inverted vertically in relation to each other as they reach down fifteen feet from the ceiling. Throughout the change in perspective from the first and second floors of the stairwell, the two oblong forms of the frame also clearly detach themselves from the ceiling, leaving behind a separate form, also in black aluminum, that remains in relief upon the ceiling with no structural connection to the rest of the sculpture. The general character of the construction slowly but surprisingly shifts from angular to

<sup>&</sup>lt;sup>37</sup> Ibid.

<sup>&</sup>lt;sup>38</sup> Naum Gabo, "A New Construction for Baltimore," *Magazine of Art* (February 1952), pp. 71– 74. The six photographs in the magazine effectively illustrate an experience of change over time and through space effected by the monument; however, as a discreet set of photographs, they cannot capture the reality of continuous change that unfolds in an actual experience of the work, as the viewer's motion carries through the whole stairwell without gaps in perspective. <sup>39</sup> See the image labeled '1' in Figure 2.

curved, and from whole to separate, as the viewer ascends the staircase.<sup>40</sup> Despite the fact that the sculpture does not actually move kinetically, it holds within itself such disparate appearances, which only become apparent as a change over time—and thus a kind of imaginary motion—brought about by the viewer's real movement along the stairs. The viewer's body engages a visible change over time in the sculpture, and as a result the viewer is enabled to reflect upon this perception of change as a visual manifestation of real time.

At the same time as the viewer ascends the stairs and the sculpture begins to unfold in a vertical extension, the construction also reveals a rotational tension-a torsion-around a vertical axis. This torsion is held in the two identical, oblong aluminum frames which are rotated orthogonally and flipped upside-down in relation to each other. The pattern of the repeated form enables the viewer to imagine one frame as having turned on itself along a central vertical axis at the same time as having inverted itself horizontally. This imaginary motion animates the drawing-in-space as a three-dimensional volume by tracing an invisible movement around a curved space defined by dynamic aluminum contours. This motion is only fully brought to life by the viewer's own movement, as the spatial arrangement of the aluminum frame is almost illegible from a singular, static perspective. The sum of the successive views of the metamorphosing, levitating sculpture along the path of the stairs thus accrete into a curved shape of three-dimensional space created by the sculpture's appearing to fold its curvilinear aluminum contours over itself within the central void of the stairwell. The viewer's perception of the change over time of the sculpture's appearance thus also defines an imaginary volume of real space within the architectural environment of the site.

<sup>&</sup>lt;sup>40</sup> These contrasts between angularity and curvilinearity, wholeness and separation, are especially notable in comparing the first and sixth figures illustrated in the *Magazine of Art*.

## **Sculpting Space as Transparent and Shaped**

The representation of space as principally curved and spherical in the *Baltimore Construction* has its conceptual roots in Gabo's practice as early as 1937, when the artist first devised a way of representing a curved conception of space in sculptural terms with a small-scale construction, entitled *Translucent Variation on Spheric Theme* (fig. 5). This sculptural invention is built on Gabo's newly developed principle that "the visual character of space was not angular; that to transfer the perception of space into sculptural terms, it has to be spheric."<sup>41</sup> Composed of a continuous, curvilinear transparent surface enclosing a spherical volume of space, Gabo's *Spheric Theme* is pure curvature, rendered immediately and totally perceptible by its use of clear plastic which allows the viewer to see all sides of the form at once.

Gabo's transition from angular to curved forms in 1937 anticipates a certain theoretical clarification that he made in 1938. At a lecture given at the Pratt Institute in New York during Gabo's six-month trip to America that year, the artist rejected the principle of abstraction as "something which is purely the result of a thought construction which has no concrete form and needs none."<sup>42</sup> Gabo was not producing thought constructions with unquantifiable dimensions, but sculptural constructions with definite material qualities. He was using the inherent qualities of his material to create visual equivalents to the invisible realities of space and time. He elaborates in his 1938 lecture with an illustrative example:

When we say "a man" this is an abstraction, we mean nobody in particular. When we say "John Smith" that is no longer an abstraction it is a specific person. When we say "a line" "a square" "a circle" we are making an abstraction which signifies an idea; but when an artist paints a square or a circle or any other figure, whatever its shape, he is doing the same thing we did when we specified "John Smith." He is painting a certain square which has concrete measures, concrete, limited and distinguished form ... A painter who is

<sup>&</sup>lt;sup>41</sup> Gabo, *Gabo*, 1957, n.p. This quote appears in between plates 64 and 65.

<sup>&</sup>lt;sup>42</sup> Gabo, Pratt Institute lecture, 1938, Tate.

painting what are wrongly called "abstract forms" does in reality paint concrete things. [sic]<sup>43</sup>

By denying that the artist generates his forms by abstracting them from reality, Gabo reverses the paradigm as he instead posits that the artist's materials and forms generate their own specific realities, both within and of the forms of space and time.

Spheric Theme, however, falls short of fully realizing a perception of time through its form and material as its transparency allows for the immediate apprehension of its total dimensionality upon the pedestal. As an immediate experience, it does not incorporate a duration of time for the viewer to apprehend. The appearance of the sculpture itself also never significantly changes after the viewer's immediate and total perception of it. Even though the viewer's vision of the object is able to trace a continuously moving path along its surface in three-dimensions, this imagined dynamism is confined only to the foot-and-a-half circumference of the translucent sphere and completely irrelative to the viewer's position outside of the sculpture. Extending from *Spheric Theme's* refusal to change its appearance according to the relative position of the viewer, its image is not monumental.

At the same time as the exterior black aluminum frame of the *Baltimore Construction* unfolds and contorts to define an essentially curved volume of space, clear plastic held within the frame renders in visual terms the other space as a presence not only around materials, but within and through them. In an interview conducted in the last years of Gabo's career, the artist reflected on the function of transparent material as a representation of spatial infinity and penetration which began in his work of the early 1920s:

The mere fact that I started to do glass, use transparent materials; why? Because I felt: How can I get into the image which I am making the feeling of space? I started to feel

<sup>&</sup>lt;sup>43</sup> Pratt Institute lecture.

that space is not around us, space is in us, that we are all, and everything all around us is, transparent.<sup>44</sup>

Transparent material—in the case of Baltimore, plastic—represents the penetration of space through solid material via the visual analogy of light penetrating see-through material. This analogy functions on a basic logic: Light is in and moving through space; and transparent materials make visible the fact that light is also within and moving through materials; and finally, by extension, space, as the carrier of light, is realized in Gabo's transparent sculpture as existing also *within* material.

In Baltimore, two sheets of transparent plastic are held within two perpendicular planes defined by the intersecting core segments of the monument's aluminum frame. The existence of the material does not become apparent to the viewer until they have begun to ascend the stairs and the planar plastic begins to present subtle reflections of the gallery lighting to them.<sup>45</sup> The appearance of the near-invisible plastic in the light is extremely responsive to the relative movement of the viewer along the stairs, effectively adding another dimension of emphasis upon the viewers real movement through the architectural space.

A much more apparent plastic form is visible from all perspectives—even from directly beneath the sculpture: a clear, spiraling shape protrudes out of the plastic planes encased by the aluminum frame and circles tightly around the sculpture's midsection. The shape of this plastic spiral is actually identical to the principal form of the 1937 *Spheric Theme*, only extremely vertically elongated.<sup>46</sup> The spiral's vertical extension unfolds along with the verticality of the rest of the construction as the viewer ascends the stairs; at first, it appears from below as two, flat

 <sup>&</sup>lt;sup>44</sup> "Naum Gabo Talks to David Thompson," *Art Monthly* (London), no. 4, February 1977, p. 13.
<sup>45</sup> See Figure 4 for an image showcasing the subtle reflective quality of the transparent plastic encased in the core of the sculpture's aluminum structural framework.

<sup>&</sup>lt;sup>46</sup> Constructing Modernity, p. 334.

semicircles, then reveals itself to be a continuous, oblong form in plastic as the sculpture unfolds in perspective. The visual metamorphosis from two separate, flat forms to one continuous and three-dimensional is another surprising and sensational change in the experience of the work.

The penetrating quality of space is also represented in another, albeit different, form of transparency created by the parabolic arrangement of tightly woven gold strings around the core of the construction. The effect of the gold strings is best viewed at a horizontal distance from the construction, either along the stairs or at the top, since from directly beneath the strings are foreshortened and illegible in their vertically extending arrangement. When viewed from the proper perspective, the countless thin lines of gold material are seen to be drawn in at such a miniscule distance from each other that they begin to illusionistically coalesce as a continuous surface. Yet at the same time, the strings are not so tightly woven that their gaps cannot be seen through; the distances between each extremely thin string are apparent as gaps of pure space, allowing the imaginary parabolic surface created by their arrangement to be nonetheless seen through. The bright shimmer of the highly reflective gold wire has the added effect of its imagined surface being made more of light than of material, to much the same end as the suspending steel wire of the hovering construction. The solid material of gold wire, arranged as it is in Gabo's construction, ultimately captures a visual representation of immaterial forms, namely, of light and space, as it is both highly reflective and visible at the same time as it is transparent and spatial.

Gabo had first used stringing in his constructive practice in 1943 when he produced *Linear Construction in Space No. 1* (fig. 6). However, the effect of Gabo's stringing in this earlier gallery object does not contribute to a sense of monumentality, as the overall rigid, symmetrical, and immediately apprehensible composition of the sculpture does not invite

realizations of change, growth, or relative energies within the viewer's environment. The sculpture's faults in this regard are similar to the shortcomings of 1937's Spheric Theme, whose symmetrical composition and total transparency allowed for the sculpture to collapse all past and future perspectives into the present, in which the whole sculpture could be apprehended at once, thus negating real time and movement around the sculpture as active and integral elements of the viewer's experience of the work. However, the use of stringing in *Linear Construction* is still effective as a function of dematerializing perceptions of curved surface, ultimately giving a shaped, parabolic surface to the pure immateriality of space itself. After all, the inability of the whole sculpture to effect change is more of a result of its boxy frame than the string which is wound around it; because of the rigid and shallow squareness of the polymethyl methacrylate plastic which suspends the stringing, the whole sculpture functions as a literal two-dimensional frame for something like a painting. The result is an interesting spatial effect, in which the 'painting' being framed is not a traditional image, but a volume of space defined by the edges of the imaginary parabolic surface created by the nylon stringing. But as a frame, the sculpture necessarily demands to be viewed from only one perspective, defined as the frontal view of its 'face,' in the center of which the subject of the work—a volume of space—can be viewed. Thus, the viewer's movement is not only not called for by Linear Construction, but restricted.<sup>47</sup> Despite Linear Construction's failure to become monumental and achieve Gabo's goal of realizing a perception of time in an experience of sculpture, it is important to understand the

<sup>&</sup>lt;sup>47</sup> Attesting to the fact that *Linear Construction* demands to be viewed at its 'face' is the way in which the construction was exhibited at the Phillips Collection in Washington, D.C., in March of 2023 as part of the exhibition *Pour, Tear, Carve*: when I went to visit the show, Gabo's construction was on a pedestal tucked flush against the wall—any perspective of the work other than at its face was thus intentionally denied by the space of the room as a result of a choice made by the exhibition organizers.

construction as an early experiment in Gabo's use of stringing which would serve as a precedent for certain formal aspects of his first monument in 1951.

#### **Critics and the Models**

As already discussed in this chapter, Gabo's 1943 *Linear Construction* as well as his 1937 *Spheric Theme*, however unmonumental they might themselves be, functioned in their time as essential experiments for the artist as he developed his practice of realizing perceptions of space and time within abstract sculpture. But these sculptures were not only important to Gabo as the experimenter seeking monumental expression of invisible forms—they were equally so to his audience of critics, who saw in these small-scale works their varying potentials to liberate sculpture from the restrictions of gravity, mass, and stasis that had long burdened the traditional statue. Critical discussion of Gabo's sculpture reached a climax in the years immediately leading up to the 1951 *Baltimore Construction*, when Gabo and his brother Antoine Pevsner held a joint retrospective at the Museum of Modern Art in 1948. The show included *Linear Construction* and *Spheric Theme*, as well as Gabo's 1929 model for a fountain which would be built as a monument, much later, in 1973 (figs.7–8). In total, 28 works by Gabo were exhibited, dating from 1916 to 1945.<sup>48</sup> The American critic Clement Greenberg left a review of the show in *The National*.

Greenberg's approach to modern sculpture was diametrically opposed to that of Herbert Read: Greenberg praised the medium as a purely optical experience, whereas Read championed it as essentially tactile and bodily. Greenberg saw the works of Gabo and his brother exhibited in

<sup>&</sup>lt;sup>48</sup> Museum of Modern Art, *Naum Gabo and Antoine Pevsner* (New York: 1948), with introduction by Herbert Read, text by Ruth Olson and Abraham Chanin.

1948 as the invention of a new genre of visual art, of "abstract 'construction,' whose world of forms is closer to that of nature."<sup>49</sup> The American critic appreciated the visual apprehension of natural space in the world of Gabo's open forms, specifically as the artist's insistence upon immateriality freed his medium from limiting commitments to figuration, representation, and most importantly, to "gravity and mass":

What is of the essence is that the construction is no longer a statue, but rather a picture in three-dimensional space, and that the sculptor in the round is liberated from the necessity of observing the habits of gravity and mass, being free now to react to landscapes, panoramas, and architecture instead of to somatic forms alone.<sup>50</sup>

However perceptive Greenberg was to Gabo's formal use of volumes of space as a basis for his abstract construction, the critic did not experience a realization of movement in the exhibited works:

Several of Gabo's pieces do impress one better as time passes: particularly, the plasticon-wood *Circular Relief* of 1925; the plastic and alabaster *Construction with Alabaster Carving* of 1938; and the plastic and cork *Construction in a Niche* of 1930. It may be that I liked these pieces especially because of their frontality, their affinity with the easel picture, which makes them easy to see from a single point of view.<sup>51</sup>

The passage of time referenced in Greenberg's review of Gabo's sculpture is not a function of bodily movement, but rather a duration in service of a purely optical experience. Greenberg stands there before the frontal construction of Gabo and absorbs it completely with his eyes alone, without the real motion of his body through space.

<sup>&</sup>lt;sup>49</sup> Clement Greenberg, "Review of a Joint Exhibition of Antoine Pevsner and Naum Gabo," in *Clement Greenberg: The Collected Essays and Criticism* (Chicago: University of Chicago Press, 1986), vol. 2, p. 226.

<sup>&</sup>lt;sup>50</sup> Ibid.

<sup>&</sup>lt;sup>51</sup> Ibid, p. 227. See Figure 8 for an installation view of *Alabaster Carving*, exemplifying the frontality of the construction to which Greenberg speaks.

Greenberg, as the stationary viewer of a purely optical experience in Gabo's gallery objects, thus highlights the absence of monumentality in the artist's small-scale work. Time does not become real for Greenberg because embodied movement outside of the space of the miniature construction and in the environment of the space is not a factor in an experience of the gallery object. To return to Read's statement in regard to Gabo's *Baltimore Construction*, in which "one must go to Baltimore and climb the stairs," it is apparent that in order to realize time as an integral element of sculptural experience, Gabo's sculpture would have to scale up with a specific awareness of the dynamics of its site and force the viewer to embody movement. Only then could movement be fully activated as a perception of time in the viewer's experience.

For the first time in Gabo's oeuvre, the *Baltimore Construction* enables the viewer to enter into a phenomenal exploration of a monumental form which changes and grows before their eyes as they move through its environment. The monument's insistence on the movement of the viewer through the transitory space of the stairwell realizes the need for the world of real motion, defined by the architectural landscape through which the viewer can move, to collapse into the world of vision, that is, the visible world of the sculpture in its site.<sup>52</sup> Gabo's realization of the forms of space and time through the *Baltimore Construction* hinge upon this collapse of vision and motion, as the viewer can only visualize the curved volume of the sculpture's space after they have realized continuous change in perspective and appearance throughout the space of the stairwell.

<sup>&</sup>lt;sup>52</sup> "Eye and Mind," p. 294.

### THE BIJENKORF CONSTRUCION

## The Rotterdam Commission

Less than a decade after completing his first monument in Baltimore, Gabo unveiled an 85-foot-tall bronze and steel construction, titled the Bijenkorf Construction, in downtown Rotterdam in 1957. Gabo first received the commission in 1954, when architect Marcel Breuer invited the artist to realize a large-scale sculpture outside of his new building, a department store for the Dutch company de Bijenkorf. Not only was the opportunity to work with a leading modernist architect new to Gabo within his monumental oeuvre, but so was the opportunity for the sculptor to employ his formal treatment of space and time towards the specific spiritual and emotional needs of a people whose city had suffered extensive destruction at the hands of the German Luftwaffe during the Second World War. With the history of the city's decimation and ongoing rebuilding in mind, Gabo described his conception of the monument in 1957 as "an image of a movement towards the heights of optimism and beauty and not of destruction. It is a monument to the energy of the Dutch people."53 Thus, movement, as something which had been central to Gabo's aesthetic for decades, including in his earlier monument in Baltimore, took on an entirely new function in the 1957 Bijenkorf Construction. Not only does the ascending dynamism of Gabo's Rotterdam construction visually suggest a kind of growth, but given that the sculpture realizes movement in a present space that was once forcefully stripped of all life and energy, the work thus becomes a symbol of a growth out of a collective history, not strictly limited within the viewer's individual experience.

<sup>&</sup>lt;sup>53</sup> Gabo, carbon of letter to Bronkhorst, 1957, Yale

What would become Gabo's towering monument to the rebuilt city of Rotterdam began while the sculptor was in Paris visiting his brother Antoine, when he received a phone call from architect Marcel Breuer. The call was somewhat unexpected, as the two were not personally close—Gabo only recalled that the two had met in Germany in the late 1920s while the sculptor was living in Berlin and the architect was studying at the Bauhaus.<sup>54</sup> At the very least, Breuer certainly knew of Gabo's work by 1954, if not so much the man himself. The conditions under which Breuer was calling on Gabo in 1954 had roots in May of 1940, when 80,000 people in Rotterdam were made homeless in a span of thirteen minutes by German aerial bombardment on the afternoon of May 14th (fig. 9).<sup>55</sup> Breuer was a part of the massive ongoing reconstruction project in postwar Rotterdam, having been commissioned in 1953 by the Dutch department store chain, de Bijenkorf, to rebuild their Rotterdam store on the corner between downtown the city's main thoroughfare, known as the Coolsingel, and a smaller side street. Complications arose for Breuer when the lead city planner, Dr. Cornelius Van Traa, asked the architect to add a projecting bay to his building in order to offset the disjointed building line created by the nextdoor Atlanta Hotel, one of the few buildings to survive the German bombings, which jutted out a distance in front of Breuer's building line.<sup>56</sup> The dimensions requested for the bay by Van Traa were to be as tall as the building (roughly twenty-five meters), extend four meters towards the Coolsingel, and measure twelve meters wide, and it was to occupy a position at the southwest corner of the building.<sup>57</sup> But Breuer refused to alter his architecture, suggesting instead that a

 <sup>&</sup>lt;sup>54</sup> Gabo, carbon of letter to Reis, 15 June 1957, Yale. Quoted in *Constructing Modernity*, p. 354.
<sup>55</sup> Antonius CGM Robben, "Metonyms of Destruction: Death, Ruination, and the Bombing of Rotterdam in the Second World War," *Journal of Material Culture* (September 2021), vol. 26, no. 3.

<sup>&</sup>lt;sup>56</sup> Bryan van Putten, "Remembering the Rotterdam Blitz: 14 May 1940," Style: Rotterdam,

<sup>&</sup>lt;sup>57</sup> Marcel Breuer, letter to Gabo, 16 June 1954, Yale.

sculptor should build a monument within the specified dimensions—so he personally called Gabo.

Ultimately, the expectations of the site presented two essential demands to Gabo: first, that he respond to the recent history of the city's destruction, the people's emotional devastation, and their ongoing high-spirited rebuilding efforts; and second, that he integrate his monumental aesthetic of the forms of space and time into the realities of the architectural environment defined by Breuer's planar, brutalist architecture and the gridlines of the street corner.

Considering the commission first in terms of the history of the site, there was reason to conceive of the sculpture as a memorial. By the time Gabo was approached for the commission in 1954, there were already precedents for remembering the war elsewhere in Rotterdam's public sculpture. Ossip Zadkine had completed *The Destroyed City* (fig. 10–11) in 1953, located a few blocks from the de Bijenkorf in the center of a sizeable, open plaza on the bank of the harbor.<sup>58</sup> Zadkine's sculpture presents a figure with contorted limbs, arms to the sky, a gaping mouth, and a hole through its chest, as if to personify the city that lost its heart to Nazi destruction. Gabo saw Zadkine's work for the ways that it represented wartime suffering and remarked, "I felt that this [Zadkine's *The Destroyed City*] was related to the past and that my experience in Rotterdam was related to the present—to a feeling of hope and admiration for human vitality."<sup>59</sup> Contrary to the expectations of a memorial, Gabo did not seek to root the image of his construction in the past, but rather in the present life of the city's architectural and spiritual regrowth.

<sup>&</sup>lt;sup>58</sup> In Figure 9 of the illustrations attached to this thesis, Breuer's department store is visible in the background of a photograph of Zadkine's sculpture, exemplifying the short distance of a few blocks that exists between the two sites.

<sup>&</sup>lt;sup>59</sup> Katharine Kuh, *The Artist's Voice: Talks with Seventeen Artists*, 1962.

The architectural environment of the site presented Gabo with determinate vectors of real movement around which to construct his sculpture of "hope and human vitality." In his own words, the conception of the monument's form exhibited "a new and different structural principle, more flexible and more adaptable to the free flow of imaginative forms."60 The principal "imaginative forms" on which the sculpture depended were the forms of pedestrian movement along the gridlines already defined by the city streets and surrounding architecture (fig. 12). The planarity of Breuer's square building was especially apparent as a definition of a linear path of motion for passing pedestrians and vehicles through the urban environment. Especially as Gabo's sculpture is viewed from the north (fig. 13), Breuer's massive façade presents itself in a foreshortened perspective that effectively launches an extended imaginary plane from the building front into an infinitely distant vanishing point ahead of the pedestrian. This imaginary orthogonal acts within the environment of the sprawling city as a vector projecting infinitely towards the horizon, at the same time as masses of pedestrians mimic its direction along the Coolsingel's sidewalk extending farther than the eye can see. It was probably because of the essential role that Breuer's façade plays in defining this infinite vector that the architect personally rejected Gabo's suggestion for a relief sculpture attached to the building.<sup>61</sup> Because a relief would have disrupted the perfect plane of Breuer's façade and thus destroyed its imaginary projection towards the horizon, Breuer ultimately suggested a free-standing sculpture instead, to which Gabo responded with his final proposal.<sup>62</sup>

<sup>&</sup>lt;sup>60</sup> Gabo, notes enclosed with a letter to Herbert Read, 10 January 1956, Herbert Read Papers, University of British Columbia, Victoria. Quoted in *Gabo on Gabo*, p. 198.

<sup>&</sup>lt;sup>61</sup> Gabo, letter to Herbert Read, November 29, 1954, Yale.

<sup>&</sup>lt;sup>62</sup> 'Excerpt from letter from Dr. van der Wal to Mr. Breuer,' Yale.

## **Gabo's Organic Solution**

Gabo's ultimate proposal for the monument was accepted by the commissioners in 1955. Gabo was explicit in his conception of the monument when he wrote to the owner of the Bijenkorf chain of department stores, Dr. G. Van der Wal, in 1955, saying, "My tower is built on the principle of the growth and structure of a tree and that means an [organic] principle."<sup>63</sup> The structural analogy carries all throughout the construction, even down to the roots—Gabo's sculpture is connected underground to the foundation of Breuer's building. He conceived of the black marble base as the trunk, and the bronze-coated steel ribs as the branches.<sup>64</sup> Visually, the construction resembles something more industrial in its rigid symmetry and modern material construction. Lewis Mumford reported in 1957 that the people of Rotterdam saw it as a representation of the city's maritime tradition, envisioning the 'branches' as oar blades and the internal steel form as a ship's anchor.<sup>65</sup> Although the structural analogy between tree and sculpture comes through partially in the monument's segmented composition and its dynamic, vertical blossoming motion, the visual representation seems confused by the sculpture's machine-age structural symmetry and selection of material.

The construction, despite its industrial material and symmetry, captures an image of organic growth in the way that its curvilinear bronze frame contorts dynamically out of a blackmarble base somewhat like a plant reaching for the sky. The bronze frame of the sculpture is essentially composed of two intersecting planes with a substantial portion of their core cut out.

<sup>&</sup>lt;sup>63</sup> Photocopy of a letter from Naum Gabo to Dr. G. Van der Wal, September 23, 1955, Cleve Gray papers, Archives of American Art, Smithsonian Institution.

<sup>&</sup>lt;sup>64</sup> Gabo, untitled notes on the *Bijenkorf Construction* enclosed with letter to Read, January 10, 1956, Herbert Read Archive, Special Collections, University of British Columbia, Victoria. Quoted in *Constructing Modernity*, p. 359.

<sup>&</sup>lt;sup>65</sup> "The Cave, the City, and the Flower," p. 48.
These two planes begin intersected perpendicularly at the black marble base, before each turns almost 90 degrees to converge on the same plane at the sculpture's apex. From a perspective taken parallel to the Coolsingel, this results in the frame appearing narrow at the bottom and wider at the top, while from an orthogonal perspective taken from across the Coolsingel, the sculpture is wider at the bottom and converges on a point at the top. The structure of the ribs from both perspectives appears to pulse and swell from a point within the spatialized core, as the widest point of the bronze frame is a kind of bulge at the midsection.

The dynamic effects of growth in the *Bijenkorf Construction* were noted by Lewis Mumford in a series of articles he wrote documenting the rebuilt Rotterdam in the fall of 1957 for the *New Yorker*. For the magazine's October issue, the critic provided an incidental description of Gabo's construction in relation to Breuer's architecture in his , stating, "Happily, the building serves as a foil to Gabo's statue, whose dynamism gains by contrast with the static façade."<sup>66</sup> In a second article for the magazine, published a month later, Mumford wrote a more focused analysis of the sculpture itself and ultimately declared, "In The Flower [the *Bijenkorf Construction*], what is positive, healthy, organically creative, confidently in command of our new energies and eager to plumb new potentialities, has come together in an original design."<sup>67</sup>

In stark contrast to Mumford's praise of the construction, Gabo's sculpture was heavily criticized by art historian Benjamin Buchloh in 1990 for its choice of material; he faulted Gabo for his "return to the traditional medium of bronze," alleging that such a decision "categorically rejects all earlier claims associated with the new materiality of Constructivist sculpture, as

<sup>&</sup>lt;sup>66</sup> Mumford, "A Walk through Rotterdam," in *The Highway and the City*, p. 39.

<sup>&</sup>lt;sup>67</sup> Mumford, "The Cave, the City, and the Flower,' in *The Highway and the City*, p. 50. Gabo's sculpture is officially untitled; hence Mumford adopts one of the many names given to it by the local population, 'The Flower.' Among other popularly imposed names for the work are 'The Gold Tower,' 'The Banana,' and 'The Thing.' See the same article from Mumford, p. 47.

defined in the *Realistic Manifesto*."<sup>68</sup> However, of Gabo's five points presented in the *Realistic Manifesto*, none have to do directly with choice of materials, but rather with how to treat them aesthetically. The artist rejects the "descriptive value" of line, "volume as a visual form of space," "mass as a sculptural element," and "static rhythms as the only elements of visual creativity."<sup>69</sup> In 1937, Gabo further clarified the differences as well as overlaps between aesthetics and technics in his sculpture:

For technique as a whole, any material is good and useful. This utility is only limited by its own qualities and properties. The technician knows that one cannot impose on material those functions which are not proper to its substance ... So much for technics.

In the art of sculpture every material has its own aesthetical properties. The emotions aroused by materials are caused by their intrinsic properties and are as universal as any other psychological reaction determined by nature. In sculpture as well as in technics every material is good and worthy and useful, because every single material has its own aesthetical value. In sculpture as well as in technics the method of working is set by the material itself.<sup>70</sup>

Similar to the technician, Gabo, as an aesthetician, selects his materials for their intrinsic properties; the difference lies in the fact that the sculptor selects materials purely for their aesthetic or visual character and not primarily for their structural functions and capabilities. To use bronze in the *Bijenkorf Construction*, then, does not betray Gabo's prewar conception of

<sup>&</sup>lt;sup>68</sup> Buchloh, "Cold War Constructivism," in *Reconstructing Modernity* (1990), p. 95. The term 'Constructivist' was first applied to Gabo by critics and other artists when he arrived in Germany from Russia in 1922 to take part in the *First Russian Art Exhibition*. Gabo had never adopted the term for himself until 1924, when he and his brother Antoine Pevsner exhibited at the Galerie Percier under the title *Constructivistes Russes: Gabo et Pevsner: Peinteurs Constructions*. See Hammer and Lodder's chapter "International Constructivism in Berlin: 1922–4" in *Constructing Modernity* for a detailed documentation of the various groups of artists in Germany who interpreted and adopted the term Constructivism for different uses.

<sup>&</sup>lt;sup>69</sup> Gabo, *Realisticheskii Manifest*, 1920. Trans. Christina Lodder in *Gabo on Gabo*.

<sup>&</sup>lt;sup>70</sup> Naum Gabo, "Sculpture: Carving and Construction in Space," in *Circle: International Survey* of Constructive Art (1937)

sculpture, as the purpose of bronze in the construction is primarily aesthetic, and secondarily structural.<sup>71</sup>

# **Vectoring Motion**

As it stands today, the *Bijenkorf Construction* utilizes the perspective taken by the viewer traveling south along the Coolsingel to define a volume of space opening itself up to a penetration by the vectors of pedestrian movement along the Coolsingel. Viewed at its northern face, the structure of bronze-coated steel ribs rises a total of 85-feet into the sky, with its open core framing a volume of space. This framed spatial volume acts as a gate through which the vector of the southward pedestrian movement down the Coolsingel can penetrate. The passing of the pedestrian vector of motion through the construction is likewise joined by the unity of direction provided by Breuer's imaginary plane projecting to the horizon ahead. Together, the direction of the avenue, Breuer's façade, and the motion of the collectivity of pedestrians create a unified synergy that aligns perfectly as a vector through the open face of Gabo's spatial construction. Considered against the image that this site would have presented in May of 1940,

<sup>&</sup>lt;sup>71</sup> Buchloh mistakenly associates Gabo with those other Soviet 'Constructivists' led by Alexander Rodchenko, whose commitments were emphatically technical, as the group declared for themselves in a manifesto of 1922, which states, "The task of the Constructivist group is the communistic expression of materialistic constructive work." Alexander Rodchenko, Aleksei Gan, Varvara Stepanova, "The Program of the Productivist Group," *Gabo* (1957), translated by Naum Gabo, p. 153. This excerpt comes from an English translation of Rodchenko's text appearing in Gabo's 1957 monograph. The translated text was originally published in the Hungarian-language journal *Egység* in Vienna in 1922. An earlier version of the program had been previously published in Russian in the Moscow magazine *Ermitzah* in August 1922. See Lodder, *Russian Constructivism*, p. 281–282 n102, for details on the genesis of the translation which appears in Gabo's 1957 monograph. Lodder makes special note of the fact that Gabo, in his translation of the program's title in his monograph, translated 'konstruktivistak' as 'Productivist' in order to differentiate himself as a Constructivist from Rodchneko, Stepanova, and Gan.

the sculpture in its site in 1957 frames the movement of a city brought back to life by its people, its streets, and its new buildings.

As the viewer passes the towering construction on the sidewalk adjacent and beneath it, the sculpture takes on drastic changes in appearance. The turning motion embodied by the intersecting virtual planes of the bronze frames in a way becomes real as the sculpture rotates in relation to the viewer's actual movement around it and past it. As the viewer approaches closer to the construction, they are eventually at a point on the sidewalk where the only possible way to view the sculpture is to look straight up into the sky (fig. 14). From this perspective, the projection of the sculpture and of the viewer's vision align on the same axis, and the viewer feels especially as if the construction is a product of his vision emanating from his body. This is an intensely vital experience, as the life of vision is given realization in the dynamic, shimmering energy of bronze material rising to the sky, all within the very site upon which thousands of bombs fell to the ground seventeen years prior.

The *Bijenkorf Construction* is unique as a way of commemorating Rotterdam's history of destruction because of its insistence on remaining rooted in the present as a phenomenal experience. Unlike a memorial, the *Bijenkorf Construction* does not explicitly reference the historical past; its function is instead solely dependent upon present realities, namely, the vectors of movement and vision which emanate from the viewer's body as they move and look down the Coolsingel. Through the *Bijenkorf Construction*, viewers are made to see the action of their own vision and movement, and to feel the force of life behind such action as a celebration of the city's rebirth.

### **REVOLVING TORSION, FOUNTAIN**

#### **Commissioning the Old Model**

The commission for *Revolving Torsion, Fountain* (figs. 15–18) began to develop in 1968, when Tate Gallery Director Norman Reid returned to Britain from a visit to Naum Gabo in Connecticut, bringing with him Gabo's expressed wish to realize his 1929 model, *Torsion*, as a monumental sculpture in Britain. Reid soon proposed the idea to Eugene Rosenberg, an architect known for his enthusiasm for siting contemporary art in his architectural projects.<sup>72</sup> Rosenberg was at the time working on designing a new complex of buildings for St. Thomas' Hospital in London, whose limited reconstruction of the 1950s in the aftermath of German bombings had run its course and demanded a more comprehensive rebuilding. The architect agreed to assist Reid and Gabo in siting *Torsion* at the hospital, and even convinced Alistair McAlpine, a wealthy construction magnate and collector of contemporary art, along with the trustees of the hospital to pay for the monument's construction and installation on the piazza of the hospital's bankside garden, directly opposite the Houses of Parliament.<sup>73</sup> The site was high-traffic, lively, and extraordinarily scenic; Norman Reid called it "one of the finest situations in London."<sup>74</sup>

The original 1929 *Model for 'Torsion'* (fig. 19) displays an adaptation of Gabo's stereometric method, first demonstrated in *Two Cubes* in 1920 as a way of visually declaring volumes of space, to a more dimensionally complex form. The basic form of *Torsion* is a skeletal structure defining the volume of a regular tetrahedron (fig. 20), a simple four-sided geometric

<sup>&</sup>lt;sup>72</sup> In 1992, Rosenberg's book on his passion and interest for art in architecture was published posthumously. See *Architect's Choice: Art in Architecture in Great Britain since 1945* (London: Thames and Hudson, 1992).

<sup>&</sup>lt;sup>73</sup> Norman Reid, "Foreword" to Architect's Choice: Art in Architecture in Great Britain since 1945.

<sup>&</sup>lt;sup>74</sup> Norman Reid, letter to Alistair McAlpine, 25 April 1973, Tate.

solid defined by four equal triangular faces. Unlike the tetrahedron in the traditional geometric sense, *Torsion* is a form without solid faces. The sculpture does away with surface to reveal a composition of only four skeleteal plastic 'arms' which extend out of a central core towards the corners of the four vertices of an imaginary tetrahedron. From four perspectives around the sculpture, the construction's arms form a basic outline of an imaginary triangular face, as the arms each extend outward in three equiangular directions. By extending material out of an open sculptural core to define a volume of space, Gabo's *Torsion* is a demonstration of the stereometric method adapted to a non-cubic geometry.

*Torsion* also anticipates Gabo's later 1937 development of spherical construction, first fully demonstrated with *Spheric Theme*, in its subtle incorporation of curvilinear elements. Instead of resting flatly on one of its faces, the original model for *Torsion* is suspended from clear string so as to appear in perfect balance upon a thin, curved edge that connects between the two bottommost vertices defined by plastic arms. Another curved edge is materialized in plastic as a connection between the vertices of the two uppermost arms. The sculpture gets its name from the sense of torsion that is generated by the compositional fact of its geometry, in which the upper half is rotated 90 degrees in relation to the lower, as if the upper body is sharply turning on its own lower extreme. Because of the two perpendicular and inverted curves into the space surrounding the sculpture. This imagination ultimately defines a spherical volume encasing the inner tensile tetrahedral form, showing, however subtly, Gabo's early experiments with curved volumes of space prior to his breakthrough in 1937 with *Spheric Theme*.

It is not so surprising, then, that Gabo would hold onto torsion and return to it with a reiterated model in 1936, only a year prior to his complete breakthrough into a sculptural

equivalent to the curved nature of space. With his second model (fig. 21), Gabo added a base to *Torsion*, so that it might stand freely instead of being suspended from string. This supporting element further carries out the rotational force of the construction by attaching the flat, circular base through two curved elements of plastic to the ends of the two lower arms in a spiraling motion. The whole sculpture is held in a dynamic suspense, as the viewer is able to imagine equally that *Torsion* may be spinning up and out of its base or spiraling down into it.

This 1936 version of *Torsion* was consistently exhibited at Gabo's most important oneman shows throughout the following decade. The work was first shown in 1938 at the London Gallery, shortly before the artist took it with him to America that year to exhibit at the Wadsworth Atheneum in Hartford and deliver his seminal lecture on "concrete art" at the Pratt Institute in New York. It was then shown again after the war in 1948 at René d'Harnoncourt's retrospective show of Gabo's "invisible sculpture" held at the Museum of Modern Art. There it was displayed alongside such foundational late experiments as *Linear Construction in Space No. 1* and *Translucent Variation on Spheric Theme*, showing the equal value that Gabo placed in the 1929 tetrahedral form along with his later inventions in spherical and linear construction.

As a transparent sculpture for the pedestal, however, *Model for 'Torsion'* exhibits the same shortcomings as the rest: the sculpture fails to demand a multiplicity of perspectives across the dimensions of real space and time in order to be apprehended, and thus, time is not realized by the actual motion of the viewer's body through it and the spatial depth of the sculpture is bracketed off from the depth of the world.

# **Realizing the New Monument**

As its title suggests, *Revolving Torsion, Fountain* takes the old model and adds a motorized rotational element to it along with waterworks, resulting in a ten-foot-tall fountain, complete with 140 streams of jetting water, continuously rotating at one revolution every ten minutes. Reflecting on his development from the original model, Gabo remarked in 1976:

I had, from the beginning, an idea that this subject, called *Torsion*, has certain curves on the outside, that it should be connected with kinetics ... I thought the wings of the piece should also have a movement of their own in the form of water jets. Now these water jets should replace lines. At that time I was very much preoccupied with making surfaces with lines, so I connected it with water and they should make jets, and the jets will give a certain kind of form by themselves ... [It] becomes like a ball of water.<sup>75</sup>

Gabo's view of the "curves on the outside" of *Torsion* suggests that he saw the sculpture from the beginning in 1929 as a spherical form, even if such concept were not as explicit as it was later with 1937's *Spheric Theme*. The added kinetic rotation of *Torsion* in the 1973 monument would then bring this spherical imagination closer to reality as the sculpture's wings actually pass through a volume of space in a circular motion. Furthermore, the projection of water out of the wings of the monument enacts an emanation of virtual surface and volume originating from the tetrahedral structure to define the imagine volume of a sphere, like a "ball of water." Ultimately, the works scale, kinetics, and situation within its site realizes a continuity of time and space outside of itself, unlike the earlier model, as the viewer perceives the monument's actual motion in time and space relative to their own circling around the fountain through the surrounding plaza garden.

<sup>&</sup>lt;sup>75</sup> "Naum Gabo Talks to David Thompson," *Art Monthly* (London), no. 4, February 1977, pp. 10–13. Reprinted in *Gabo on Gabo*, p. 276.

The realization of the form as a fountain proved a great technical challenge, as hydraulic engineers had to devise a way of fitting water pipes and jets to Gabo's form without significantly altering its image. The challenge met by the engineers was not made any easier by Gabo's stern yet characteristic insistence, which he expressed in a letter to McAlpine before construction even began on the project:

I would like you to understand me when I insist that I, as I explained to you already, know from all my practice of working on this kind of open-air monuments [sic], it is not wise to rely only on the engineers. I would have to dedicate all my time during the construction of the work and be present in London and in full charge of all the work till the end.<sup>76</sup>

The engineers of Matthew Hall Engineering Limited were, in the end, able to incise the water jets into the arms of the sculpture, thus making them effectively invisible, while at the same time maintaining an even pressure across each of the jets by first pumping the water to the top of the sculpture, before feeding it to the propulsive mechanisms in the arms.<sup>77</sup>

Ultimately, the 140 jets of water sprouting out of the sculpture define four virtual surfaces. These surfaces are themselves defined by individual lines of water separated from each other by small gaps of space, according to the same general principle as the nylon strings in Gabo's 1943 *Linear Construction in Space No. 1.* Similar to nylon string, *Torsion's* jets brilliantly catch the outdoor lighting within their droplets of water, giving the streams a certain quality of being made actually of light. The major difference between water and nylon is, of course, that the earlier plastic strings were only dynamic in an imaginary sense, whereas *Torsion's* jets are actually and constantly moving. Torsion's imaginary projecting surfaces are thus layered with energies: the energy of light and the energy of actual motion.

<sup>&</sup>lt;sup>76</sup> Gabo, letter to Alistair McAlpine, 1 May 1970, Yale.

<sup>&</sup>lt;sup>77</sup> Reid, letter to Gabo, 13 December 1973, Yale; E.V. Harcourt, Project Engineer, letter to Gabo, 10 May 1972, Yale.

*Torsion* becomes a "ball of water" as the component streams of each of the four virtual surfaces of water are oriented such that they intersect at one point in space outside the construction. The four points in space defined by the intersections of moving water are plotted on the imaginary surface of a sphere—the same imaginary sphere defined by the curvature of the sculpture's top edge and the vertices of its four wings. The sphere created by *Torsion's* steel frame and its projected jets of water is unceasingly dynamic; the whole sphere actually turns itself at the same time as its spatiality is generated by the actual motion of water streaming out of it to points on an imaginary surface. Not only does *Torsion*'s "ball of water" create the illusion of projecting vectors and surfaces defining a spherical volume of space, but it also brings a perceptual awareness to the unending passage of time. Regardless of the viewer's motion or stillness, *Torsion* never ceases to make the passage of time visible through the constant flow of water from its continually rotating body.

#### **Designing the Site**

The monument and its motion is in unity with the energies of its surroundings, such as the motion of the viewer around the encircling garden path, the flow of the nearby Thames' waters, and the vectoring and turning of pedestrians around street corners, along the riverbank, and across Westminster Bridge. The most intimate engagement between sculpture and environment occurs within the garden in which the fountain is sited. Gabo was adamant about the specifics of the garden's design and that it align with the experience of the sculpture kinetic rotation and formal openness, as he wrote to the architect Eugene Rosenberg in 1973 in reaction to the initial architectural sketches for the plaza:

I am sorry to have to tell you that it seems to me that the architects do not realize the functions or the mere characteristics of my "Fountain." Also it seems to me that even

their approach to the forming of the whole plaza is not in many ways corresponding with the form and action of the "Fountain." ... Any plan which is a square does not mean that it should be treated in squares. I should think that we now are already far away from that and in my opinion, altho [sic] this plaza is a square, it is not for houses; it is for something which is round and for something which in its action is three-dimensional. It is obvious that such an object demands a base, (the pool), not square, but circular.<sup>78</sup>

The architects had initially planned for a square pool in which Gabo's *Fountain* would be situated, but the artist explained that this kind of environment would hinder the experience of the sculpture's spherical character and rotational motion. The architects complied with Gabo's demand, and the fountain was given a circular pool at the center of the square plaza. As a result, the rotation of the fountain was better accompanied by the form of its surroundings. As the water projected out from the spinning steel frame to fall in a circular pattern, the rotational motif of the sculpture and waterworks was extended further to the circumference of the circular pool surrounding.

Gabo had further issues regarding the initial design of the whole plaza itself, because he demanded that the environment be as open as the construction:

Here again, a plaza is even by its name an open space and in architectural usage it is an open space and dealing with it on the plan as if it is a space to put houses on is a wrong approach from the very beginning. ... The plaza on the plan is surrounded with a closed wall; it covers the view and the life from outside—this too must be out.<sup>79</sup>

With high, closed walls, the viewer's vision through the open construction and onto the surrounding city would be limited. Such perspectives as the fountain's silhouette against the Houses of Parliament across the river or against the Rosenberg's modernist hospital architecture would be obstructed. Again, the architects complied, and Gabo's fountain was given an open

<sup>&</sup>lt;sup>78</sup> Gabo, letter to Eugene Rosenberg, 25 July 1973, Tate.

<sup>&</sup>lt;sup>79</sup> Ibid.

environment which allowed for the sculpture to be seen in the context of the architecture surrounding the garden. The compliance of Rosenberg's firm was most likely a consequence of the Mr. Rosenberg's personal dedication to the integration of art within architecture. Writing the foreword for his book, *Architect's Choice*, published posthumously in 1992, Rosenberg expressed his dedication to the artist as an architect:

I am committed to the belief that the artist has an important contribution to make to architecture. The bond between contemporary art and architecture is not easy to define, but I believe they are complementary—that architecture is enriched by art and that art has something to gain from its architectural setting. If asked why we need art, I could give answers based on philosophy, aesthetics, prestige, but the one I put high on the list is that art should be part of the enjoyment of everyday life.<sup>80</sup>

Rosenberg's belief in the need of art for "everyday life" strongly recalls Gabo's 1920 demand for art to "attend us everywhere that life flows and acts." It is thus not so surprising that this exact line from the *Realistic Manifesto* was chosen as the opening epigraph to the architect's 1992 book. Rosenberg's book clearly shows an admiration for Gabo in particular, both because his *Manifesto* is included as its epigraph and *Revolving Torsion, Fountain* as the illustrated frontispiece. Richard Cork, the author of the text within Rosenberg's posthumous publication and close friend of the late architect, is equally impressed by the artist's site-specific sculpture, as he refers to Naum Gabo's fountain as "the most astounding of all the works acquired for St. Thomas' … When set in motion, the interplay between its tensile steel structure and the soft explosions of water is superbly orchestrated."<sup>81</sup>

Upon entering Rosenberg's plaza from its main entrance on its eastern side, Gabo's spatial fountain construction dances in front of the Houses of Parliament and Big Ben (fig. 17),

<sup>&</sup>lt;sup>80</sup> Eugene Rosenberg, *Architect's Choice: Art in Architecture in Great Britain since 1945* (London: Thames and Hudson, 1992), p. 6.

<sup>&</sup>lt;sup>81</sup> Ibid, p. 108.

resulting in a clear and simultaneous view of both kinetic modern sculpture and static Gothic architecture. From this perspective, the vector of the viewer's vision penetrates through the imaginary surface of Gabo's "ball of water" in the direction of the architecture of the Houses of Parliament. The realization of the penetrating quality of this vector through imaginary surfaces allows the viewer to envision its continuation through the solidity of actual surface, in this case, the solidity of the Houses of Parliament, with equal force, thus realizing Gabo's dictum that "everything is transparent." The sculpture exhibits the same function against the architecture on all three other sides of the square plaza. As the viewer rotates around the sculpture, either along with or against the relative direction of the fountain's rotation, they envision new juxtapositions of the kinetic sculpture against the modernist architecture of the hospital buildings to the east and south of the garden.

*Revolving Torsion, Fountain*, is a testament to Gabo's ability to create new phenomena out of old forms. By scaling up his 1929 model, incorporating actual movement into the monumental form, and working carefully to design the site around the fountain, Gabo created in London an experience of space and time which depended on the viewer's awareness of their own vision and movement to function.

## **CONCLUSION**

As the artist himself declared in 1920, "Space and time are the only forms on which life is built and hence art must be constructed."82 This thesis has demonstrated how Naum Gabo's monuments, beginning in 1951, became the fullest realizations of the artist's aforementioned goal for the new sculpture. By scaling up and responding to the specifics of site, each of Gabo's monuments create phenomena through which the forms of space and time become perceptible to the viewer's seeing and moving body. My analysis has shown how Gabo's first monument in 1951, the *Baltimore Construction*, puts the real time and space of its environment on display within its form as the sculpture's design responds intentionally to the viewer's movement through its site. The 1957 Bijenkorf Construction similarly relies upon the viewer's seeing and moving body, but within the unique context of a public urban environment renewed out of the ashes of its destruction during the Second World War; as opposed to being a memorial rooted in the past, Gabo's Bijenkorf Construction functions to bring its viewer's awareness to the present realities of time and space, and the viewer's own real and vital movement through it. Finally, Revolving Torsion, Fountain has shown how the added dimensions of scale, site-specificity, and kinetics enabled Gabo to transform an old model from 1929 into a full realization of the forms of space and time within an open, public environment.

It is my ultimate contention that Gabo's monuments are the culmination of a vision that was present in the artist's mind since 1920, but not realized out in the world until 1951. Gabo's *Manifesto* makes this clear:

In the squares and in the streets we are placing our work ... Art should attend us everywhere that life flows and acts ... at the bench, at the table, at work, at rest, at play;

<sup>&</sup>lt;sup>82</sup> Naum Gabo, *Realisticheskii Manifest*, quoted in *Gabo on Gabo*, p. 26.

on working days and holidays ... at home and on the road ... in order that the flame to live should not extinguish in mankind.<sup>83</sup>

Despite not coming to fruition until 1951, Gabo's monuments demonstrate why the artist needed to be a public artist in order to achieve his goals. His monuments build off of his partially functional model-experiments to fully realize phenomenal experiences of space and time in the public, integrating sculpture, environment, and viewer under one definition of reality. These works activate the viewer's entire body, as an "intertwining of vision of movement," in a spatiotemporal investigation of sculptural form that is designed to be responsive to the viewer's seeing and moving body within and throughout the landscape. It is this extension of the perception of the forms of space and time into the viewer's body and landscape that Gabo envisioned when he wrote in 1920 of attending art "everywhere that life flows and acts;" and that is precisely what he finally accomplished in the years between 1951 and 1973.

<sup>&</sup>lt;sup>83</sup> Gabo on Gabo, p. 28.

# **ILLUSTRATIONS**



Figure 1. Constructed Head No. 1 (1915), plywood. Städel Museum.



Figure 2. *Baltimore Construction* (1950), aluminum (baked black), phosphor-bronze mesh, stainless steel wire, rolled-gold wire, and plastic. Baltimore Museum of Art.



Figure 3. *Baltimore Construction* (1957), photographed in 2023 by the author in its relocated site, a different and more accessible stairwell at the BMA of similar dimensions to the original.



Figure 4. *Baltimore Construction*, illustrated in "A New Construction for Baltimore," *Magazine* 

of Art (February 1952).



Figure 5. *Translucent Variation on Spheric Theme*, 1937 (reconstructed 1951), Perspex. Solomon R. Guggenheim Museum, New York.



Figure 6. *Linear Construction in Space, No. 1,* 1942–43, Plastic (polymethyl methacrylate) and nylon thread. Tate.



Figure 7. Installation shot of 1948 MoMA exhibition showing *Translucent Variation on Spheric Theme* (center).



Figure 8. Installation shot of 1948 MoMA exhibition, showing *Linear Construction in Space*, *No. 1* (left) and *Torsion* (right).



Figure 9. This photograph was taken in the aftermath of German bombings of the old city of Rotterdam and features the remains of the damaged St. Lawrence church. 17 years later, Gabo's sculpture would be unveiled within 600 meters of the church. Aerial view of the ruins of Rotterdam, May 14, 1940. Records of the Office of War Information, United States National Archives and Records Administration.



Figure 10. Ossip Zadkine, *The Destroyed City*, 1953. Image from January 1957. Nationaal Archief, The Netherlands. The Bijenkorf department store is visible in the background at the right of the sculpture.



Figure 11. Ossip Zadkine, *The Destroyed City*, 1953. Image from April 1958. Nationaal Archief, The Nehterlands.



Figure 12. *Bijenkorf Construction* (1957) outside Breuer's de Bijenkorf department store. L-2750, The Rotterdam City Archives. This photograph highlights the function of the street corner site in defining the perpendicular vectors of actual motion along the gridlines of Rottderdam's city streets. From this perspective, Breuer's architecture can be appreciated for the unity that its converging faces create with the environment, as the orthogonals of the building project out of the corner along the paths of pedestrian movement parallel to the Coolsingel (seen at the right of the frame) and the intersecting Beuersplein side street (at the left of the frame). The openings of Gabo's spatial bronze frame can be seen here as opening itself to the penetration of both of these vectors.



Figure 13. *Bijenkorf Construction* (1957). This is the perspective taken by the viewer entering into Rotterdam's bustling downtown district. The Bijenkorf is close to the periphery of the commercial center; just behind the camera in this photograph, only a short walk of a few blocks, is the Rotterdam Centraal train station, a transportation hub connecting the city to Europe as well as to local inner-city destinations via bus and tram. Gabo uses the directional traffic along the Coolsingel, connecting the downtown district to the world, to rely upon this north-south perspective as a realization of the traffic's vectors of movement. Breuer's building at the very right of the frame acts to further define the unity of vectors between pedestrian and environment, as its orthogonal projects along the axis of Rotterdam's main traffic artery. Architectural and pedestrian vectors launch together through the open space made perceptible by Gabo's gate-like construction.



Figure 14. *Bijenkorf Construction* (1957). Fotocollectie Rijksvoorlichtingsdienst Eigen, Nationaal Archief Nederlands. Viewed by a passerby craning their neck upwards from directly beneath, the *Bijenkorf Construction* launches itself skyward in the direction of the viewer's vision. This enables the viewer to draw a path of their sight upwards as it rises infinitely into the air above; such a creative and vital experience of vertical growth is the polar opposite of the destruction which rained downwards upon the city in May of 1940. The viewer's active participation in the sculpture, through their movement and vision, thus becomes a symbol in itself of the city's rebirth.



Figure 15. Model for 'Torsion' (1929), plastic. Tate.



Figure 16. *Torsion* (1936), Perspex. Tate. Added visual demonstration of the four imaginary triangular surfaces defined by the tetrahedral skeleton.



Figure 17. *Torsion* (1936), Perspex. Tate. Without added visual demonstration of the imaginary triangular surfaces. This work was first exhibited at Gabo's 1938 show at the London Gallery. It was shown again in New York in 1948 as part of René d'Harnoncourt's exhibition of Gabo's "invisible sculpture" (see figure 6).



Figure 18. *Revolving Torsion, Fountain* (1972–73), stainless steel. Photographed 1976, John Laing Photographic Collection, Historic England Archive.



Figure 19. *Revoving Torsion, Fountain*. Photographed 2012 by Garry Knight. The jets of water in this photograph are particularly clear, and the points of intersection that they create in the air outside the sculpture are rendered with fidelity.



Figure 20. Revolving Torsion, Fountain, photographed in 2024 by the author.



Figure 21. Revolving Torsion, Fountain, photographed in 2024 by the author.
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