ARCHITECTURE AS A DISCURSIVE DISCIPLINE: INFLATABLE SPACES OF RADICAL AVANT-GARDES

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ABSTRACT

ARCHITECTURE AS A DISCURSIVE DISCIPLINE: INFLATABLE SPACES OF RADICAL AVANT-GARDES

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This thesis is an inquiry into the inflatable architecture of avant-garde architects, produced from the late 1960s to the early 1970s. Positioning this strand at the transformation of architectural discourse, it starts with the assumption that the period between the late 1960s and the early 1970s marked a paradigm shift in architecture, catalyzed by the technological developments and; social, political and cultural upheavals during this period. This shift represents a break from the conventional definitions of architecture and necessitates to draw a new frame for the boundaries of the discipline. It is the claim of the study that inflatable works of avant-gardes were referred to as tools which made the shift visible, moving outside the conventional boundaries of the discipline into an "expanded field."

As an agent which contributed to the expansion of limits of the discipline, inflatable space provides a ground to discuss the transformation of architectural discourse and helps in identifying the contours of an emerging shift during this period. Through a reading of the inflatable works of avant-gardes, this thesis aims at not only exploring this new generation of architects characterized by their radical and critical ideas but also constructing an overall frame for new elements, concepts and relations emerged in architectural discourse. Briefly, it is a demonstration of how inflatable spaces

became creative environments in architectural culture, and accordingly, it seeks to answer the following question: “how the inflatable spaces can be interpreted as tools to read the epistemological shift in architectural thinking?”

Keywords: architectural avant-garde, inflatable space, experimentation in architecture, expanded architecture, redefinition of architecture, architectural discourse

ÖZ

SÖYLEMSEL BİR DİSİPLİN OLARAK MİMARLIK: RADİKAL AVANGARDIN ŞİŞİRİLEBİLİR MEKANLARI

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Bu tez, avangart mimarların 1960'ların sonlarından 1970'lerin başlarına kadar ürettiği şişirebilir mimarinin bir incelemesidir. Bu üretimi mimari söylemin dönüşümü üzerinde konumlandıran çalışma, geç 1960'lar ve erken 1970'lerin teknolojik gelişmeler ile sosyal, politik ve kültürel değişimlerin kolaylaştırdığı bir paradigma değişimini işaret ettiği varsayımıyla başlar. Mimarlığın geleneksel tanımlardan kopuşunu temsil eden bu değişim disiplinin sınırları için yeni bir çerçeve çizilmesini zorunlu kılar. Çalışmada, avangardın şişirilebilen çalışmalarının, disiplinin geleneksel sınırlarını aşıp genişletilmiş bir alana taşınmasıyla değişimi görünür kılan araçlar olduğu iddia edilmektedir.

Disiplinin sınırlarının genişlemesine katkıda bulunan bir araç olarak şişirilebilir mekan, mimari söylemin dönüşümünü tartışmak için bir zemin sağlar ve ortaya çıkan değişimin hatlarını belirlemeye yardımcı olur. Avangardın şişirilebilir çalışmaları üzerinden bir okuma yaparak, bu tez yalnızca radikal ve eleştirel fikirleriyle nitelendirilen bu yeni nesil mimarları araştırmayı değil, aynı zamanda mimari söylemde ortaya çıkan yeni unsurlar, kavramlar ve ilişkiler için genel bir çerçeve oluşturmayı da amaçlar. Kısaca, bu tez şişirilebilir mekanların mimari kültürde nasıl yaratıcı ortamlar haline geldiğinin bir gösterimidir ve bu doğrultuda "şişirilebilir

mekanlar mimari düşüncedeki epistemolojik değişimin okunabileceği araçlar olarak nasıl yorumlanabilir?" sorusuna yanıt arar.

Anahtar Kelimeler: mimari avangart, şişirilebilir mekan, mimarlıkta deneysellik, genişletilmiş mimarlık, mimarlığın yeniden tanımlanması, mimari söylem

To My Family,

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ABBREVIATIONS	
Architectural Design Magazine	AD
Lightweight Enclosures Unit	LEU
United States	US

CHAPTER 1

INTRODUCTION

This study starts with the assumption that the period of the late 1960s and early 1970s marked a paradigm shift in architectural discourse. Catalyzed by the technological developments and; social, political and cultural upheavals during this period, this shift represents a break from the established definitions of architecture and necessitates to draw a new frame for the boundaries of the discipline. The introduction of new elements and concepts into architectural productions during this period has opened up new possibilities of architectural space and thus it expanded the limits of architectural discourse.

Starting from this point, how the discourse is formed is one of the primary concerns of this study. Foucault referred to the constituents of discourse and described his concept of "discursive formation" as follows:

> "Wherever one can describe, between a number of statements, such a system of dispersion, wherever, between objects, types of statement, concepts, or thematic choices, one can define a regularity (an order, correlations, positions and functionings, transformations), we will say, for the sake of convenience, that we are dealing with a discursive formation."[1]

Applying Foucault's seminal concepts to the architecture as a discursive discipline, Paul Hirst, renowned British sociologist, explained the difference of discourses and discursive formations as: while the former referred to the "forms of order," the latter

[1] Michel Foucault, *The Archaeology of Knowledge*, trans. A. M. Sheridan Smith (New York: Pantheon Books, 1972), 38.

were differentiated from the former with revealing the patterns of these orders.[2] Accordingly, to identify a pattern in statements, what Foucault meant by the word "regularity," was the indicator of discursive formation. From this point of view, Hirst contributed to a better understanding of Foucault's concepts in architectural circles and also provided a base for this study to trace the lines of the shift that has occurred in architectural discourse during the period between the late 1960s and early 1970s.

According to Foucault's seminal concept of "discursive formation," this thesis aims at searching for a "regularity" between the statements and uses this Foucauldian concept as a tool to identify a new line in the history of architectural ideas. This line which challenged conventional orthodoxies in architectural discourse attempted to subvert the dominant paradigm and thus brought about significant changes in the definition of architecture. In this context, it led to a "discontinuity"[3] in the existing paradigm, a "historical rupture" of which the radical questioning in the late 1960s was a constituent in all creative disciplines as well as architecture.[4] The question raised by Foucault in "The Archeology of Knowledge," "how is one to specify the different concepts that enable us to conceive of discontinuity"[5] constitutes the leading motive of this study.

With reference to Foucault's "The Archeology of Knowledge," Hirst claims that the Foucauldian understanding of discourse helps architects in considering all products of architecture as "elements of discourse" and thus it breaks down "the barrier between the common-sense category of objects and that of discourse- words, explanations,

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[2] Paul Hirst, "Foucault and Architecture," *AA Files*, no. 26 (Autumn, 1993): 52, accessed May 14, 2019, http://www.jstor.org/stable/29543867.

[3] Besides the word "discontinuity," Foucault also uses the words of "threshold, rupture, break, mutation, transformation" interchangeably. For further information, see, Foucault, *The Archaeology of Knowledge.*

[4] Nigel Whiteley, *Reyner Banham: Historian of the Immediate Future* (Cambridge, Massachusetts: The MIT Press, 2002), 189.

[5] Foucault, *The Archaeology of Knowledge*, 5.

programmes, etc., which are held to be about objects."[6] In this context, what the Foucauldian understanding of discourse enabled for the discipline of architecture was an opposition to "the distinction between buildings as objects, and architectural theories, programmes and teaching that are about buildings."[7] Instead of emphasizing a split between architectural theory and practice, this study considers all products of architecture as discursive, as Hirst claimed that "..a brick and a word; both may be elements of a discourse."[8] In line with this holistic approach to the forms of architectural production, it proposes a review of the architectural production in the late 1960s and early 1970s, not only buildings which were considered as the ultimate products of architecture but all the acts which dwell in the discipline of architecture: the written material such as magazines, journals and manifestos spreading during this period; representative works such as drawings, collages, physical models; social events such as exhibitions and world fairs, namely all forms of architectural production.

Through the review of these products, this study is directed towards describing the discontinuity in architectural discourse. This discontinuity in the existing paradigm signifies the other way to talk about architecture, regarding the discussions on form and function relations, aesthetics, technology, new relations with landscape, bodily movement of users, the distinction between public and private, temporality and monumentality.[9] These discussions spread in the architectural culture during this period provide a new vocabulary for the discipline of architecture and thus concludes with the emergence of new forms of architectural practice.

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[6] Hirst, "Foucault and Architecture," 52.

[7] Ibid.

[8] Ibid.

[9] Statement based on the discussions with Prof. Dr. Ayşen Savaş throughout this study.

Accordingly, this thesis will propose an inquiry into the new elements and concepts in the architectural culture of this period by primarily focusing on "inflatable structures" which emerged as one of the new forms for producing architectural spaces. Through an analysis of these structures which render the discontinuity in architectural discourse more visible, it aims at materializing the aforementioned paradigm shift and thus understanding its underlying dynamics. In this context, this thesis uses inflatables to characterize the discursive formation and attempts to construct an overall framework for the radical ideas.

In consideration of their radical natures, inflatable structures were considered as one of the most significant architectural products of this period in terms of questioning conventional definitions of architecture. The practitioners of these structures have been referred to a new design generation who reassessed architectural norms. In this context, these architects will be named as "the avant-gardes"[10] throughout this study. This denotation of "avant-gardes" signified the beginning of a new line in the history of architecture, associated with not only such notions as radicality, but also as criticality, unorthodoxy, experimentality and visionariness.

In this study, it is claimed that the works of avant-garde architects bring about a disruption in the dominant paradigm. Within this scope, inflatable structures could be regarded as a case study to investigate the alternatives to the traditional modes of architecture since they were demonstrating new design approaches of avant-gardes. As a tool to express the ideas of avant-gardes, inflatables provided a platform for the architects who shared the desire for a change and led to gather around an opposition to the existing frame of architecture.

[10] According to Merriam-Webster dictionary, "avant-garde" as a term derived from French, is used describe "an intelligentsia that develops new or experimental concepts especially in the arts." See, *Merriam-Webster Dictionary, s.v.* "avant-garde," accessed April 28, 2019, https://www.merriam-webster.com/dictionary/avant-garde. At this point, is should be noted that twentieth century architecture witnessed the emergence of many movements regarded as "avant-garde," starting from Russian Constructivism and Bauhaus in the early years of the century. Nevertheless, this study specifically focuses on the avant-garde design movement emerged in the second half of the century.

It is the goal of this thesis to explain the fascination of inflatables for avant-garde architects with their disruptive features, rooted in their ability to challenge established norms in architectural discourse. In other words, their power was in this ability to interrupt a pattern of the order and replace with the new one. Therefore, inflatable works of avant-gardes were approached as discursive objects throughout this study. While illustrating the ideas underlying the production of inflatable spaces, this research pursues a "regularity" or a "congruence" between the ideas which indicate the presence of a discursive formation in the architectural discourse during this period.

The textual body of the research starts with an inquiry into the origins of avant-garde tendencies which emerged in the architectural culture during this period. Accordingly, the second chapter focuses on "radical avant-garde architects" to uncover the roots of avant-garde ideas and emphasizes the importance of the notion of experimentality in architecture and its relation with the transformative nature of the 1960s. Referring to the key works and events associated with the rise of inflatable structures in architectural culture, it provides context to architectural production at that time. Presenting a selection of works, this chapter aims at reflecting the social creativity of the period, which also pervaded both architectural practice and theory. In this way, it introduces pneumatic technology as "an archetype for architectural experimentation"[11] and thus as a tool to demonstrate avant-gardes' leading motives: their challenge to authority and desire for change.

The third chapter is the core part of the study since it was dedicated to construct a frame for the avant-garde definition of architectural spaces. Narrowing down the scope of the investigation to the inflatable works of avant-gardes, it analyzes new elements and relations emerged in the architectural discourse. To make the shift visible, this analysis will be conducted through five subtitles in the scope of inflatable practices: space-site, space-form, space-material, space-user and space-time. With the

[11] Whitney Moon, "Environmental Wind-Baggery," *e-flux*, August 1, 2018, accessed February 9, 2019, https://www.e-flux.com/architecture/structural-instability/208703/environmental-wind-baggery/.

objective of indicating a congruence between the avant-garde statements, the transformations of the definition of architectural space will be interpreted as tools to read the epistemological shifts in architectural discourse, in parallel with the social, political and cultural transformations of society.

Based on the frame constructed in the third chapter, the fourth chapter evaluates the avant-gardes' redefinition of architectural space and its boundaries; thus it introduces the concept of "expansion" to describe the shift occurred in architectural discourse at that time. The term "expansion" which was adopted from Rosalind Krauss brings a new dimension to discuss the broadened scope of the discipline. At this point, inflatable structures ease to track the main lines of the expansion in architecture by providing an inquiry into how the avant-garde tendencies expanded the architectural discourse in the late 1960s and early 1970s. In this context, the contribution of inflatable structures to the redefinition of architecture will be interrogated, regarding the radical and critical stances of avant-garde architects.

In the light of the discussions throughout the thesis, last chapter will restate the thesis statement that was inflatable spaces produced in the late 1960s and early 1970s were one of the signifiers of the paradigm shift in architectural discourse and thus they could be interpreted as the media for an expanded definition of architecture. Briefly, this thesis is a demonstration of how inflatable spaces were related to the architectural discourse.

CHAPTER 2

THE ORIGINS OF INFLATABLE SPACES

The idea of inflatable space is being revisited today by contemporary architects and artists who experiment with inflatable structures. Anish Kapoor's installation: "Leviathan" for Monumenta 2011 in the Grand Palais or Rem Koolhaas-Cecil Balmond's "Serpentine Pavilion" for Serpentine Gallery in 2006 are some of these iconic projects creating environments between art and architecture. These pneumatic scenes could be thought as quite new in architectural culture since their image envisioned in mind is quite vivid; however, the origin of inflatable spaces could be traced back to the 1960's radical avant-garde architecture.[12]

Accordingly, this chapter aims at uncovering the roots of avant-garde tendencies which had emerged in the architectural culture during this period. Reflecting the social creativity of architecture, it intends to give a background context to the role of inflatable spaces in the formation of avant-garde paradigm, in terms of both theoretical and practical productions. Through a selection of key works and events of inflatable idea for counter-cultural architecture, it attempted to track this line in the history of architecture and explain the underlying dynamics of this period, resulted in the rise of inflatable productions in architectural scenes of the late 1960s and early 1970s.

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[12] In his edited book "The Inflatable Moment: Pneumatics and Protest in 1968", Marc Dessauce states that there are three important pneumatic scenes. The first pneumatic scene was realized by Montgolfier Brothers, with the invention of hot air balloon ("globe aérostatique") in 1783. The second is the escape of French Prime Minister Léon Gambetta with a hot air balloon, during the Franco-Prussian war in 1870. This escape was an important symbol in the days leading to the Paris Commune. Dessauce identifies the radical avant-garde architecture of May'68 as the third pneumatic scene and interprets these scenes as moments leading to epochal shifts: the first is scientific, the second political and the third is cultural, yet all of the scenes causes social changes. See Marc Dessauce, "On Pneumatic Apparitions," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 23-25.

Figure 2.1. Anish Kapoor, "Leviathan" for Monumenta 2011 Grand Palais, France, 2011.

Source: Official Website of Anish Kapoor. 19 Sep. 2018.

<http://anishkapoor.com/741/grand-palais-2011>

Figure 2.2. Rem Koolhaas-Cecil Balmond, "Serpentine Pavilion" for Serpentine Gallery London, United Kingdom, 2006.

Source: Official Website of OMA. 20 Sep. 2018.

<http://oma.eu/projects/serpentine-gallery-pavilion>

2.1. Experimentation and 1960's

1960's was a decade with political, social and cultural upheavals that affect architectural thought and production as well. New issues and concerns were introduced to the architectural discourse: such as gender, environment, experiment, meaning. During 1960's, these discussions led to a radical critique of existing condition which generated debates among the architecture schools all over Europe, especially in France. After the universities of Nanterre and Sorbonne, with The Ecole des Beaux-Arts' joining the strike[13], young people's involvement with politics eventuated in questioning "traditional education" at design schools.

The critique of traditional methods in architectural pedagogies causes to the emergence of some radical initiatives[14] which were driven to "reject and reshape the field of architecture."[15] According to these initiatives, architecture's relation to social, political and economic processes needs a "redefinition" so does the architectural education. In this context, architecture schools could be placed between two extremes in terms of power relations. In "The Radical Pedagogies Project," Colomina, Kotsioris, Galán and Meister states that,

> "Academic institutions became a space of confrontation – sites of extended intellectual, political, economic and physical battles. On the one hand institutions were understood as necessary hosts for the erosion of established structures of power.

[13] Ibid., 34.

[14] In "The Radical Pedagogies Project", the authors exemplify the outcome of questioning traditional methods with the formation of the Unité Pédagogique d'Architecture No. 6 (UP6) in 1969 as an alternative to The Ecole des Beaux-Arts. Like its contemporary iniatitives, UP6 was founded as a counter-act which opposes "the dominant modes of architectural education of both the Polytechnique and the Beaux Arts systems". See Beatriz Colomina, Evangelos Kotsioris, Ignacio González Galán and Anna Maria Meister, "The Radical Pedagogies Project," *Volume*, no. 45 (2015): 33-64, accessed September 26, 2018, http://volumeproject.org/the-radical-pedagogies-project/.

[15] Ibid.

> On the other hand they were perceived as mechanisms for the reproduction of existing systems of domination. Institutional authority was critiqued through a broad range of counter-institutions and alternative pedagogical platforms that undermined hierarchical structures."[16]

Challenge to authority and desire for change were two main motivations in the works of late 1960's and 1970's avant-garde architects. Universities as institutional structures which guaranteed the hegemony of the ideology and continuity of its practices were considered as "apparatuses of state,"[17] since they served the authority in the reproduction of the power's ideology. The repression that the existing system of dominance generated through education system, aimed to maintain the ideology by promoting thinking in a certain way. Thus, particularly in architectural education, this promotion led to a counter-culture, which opposed the "traditional" and sought a break with the old in order to challenge the established authority.

Despite that academic institutions, which were perceived as "mechanisms for the reproduction of existing systems of domination" and tools for repression; they provided students an environment for gathering and spreading their strong desire for change. To realize their visionary ideas, a young generation of architects in pursuit of the change started to experiment with "space" thus some groups such as Archigram in England; Utopie in France; Haus-Rucker-Co and Coop Himmelblau in Austria; Superstudio and Archizoom in Italy emerged out. Even though the experimentations were held in record time, in the late 1960's and early 1970's, they were "connected as

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[16] Ibid.

[17] The term "apparatuses of state" is excerpted from Althusser's "Ideology and Ideological State Apparatuses." Althusser defines the institutionalized structures like "the government, administration, army, police, courts, prisons" as repressive state apparatuses (RSA's) and the structures which appear to be nonideological but intrinsically fully ideological like the family, media, religious organizations and schools as ideological state apparatuses(ISA's). According to Althusser, state aims to reproduce power's ideology through the education system to maintain its hegemony. See Louis Althusser, "Ideology and Ideological State Apparatuses (Notes Toward an Investigation)," *Lenin and Philosophy and Other Essays.* Translated by Ben Brewster. (1970. Reprint, New York: Monthly Review Press, 2001), 85-132.

a web of shared concerns across ideologies and geographies."[18] Besides the differences in their critical stances, these collectives share the same enthusiasm to strive for "a radically new concept architecture" across their social and political boundaries.

The notion of experimentation was a key concept among the works of the radical avant-garde collectives. At that time, experiment was used as a tool for expanding the boundaries of space and opening up new possibilities of architecture. 1960's wasn't only the years of political protests, but also it was full of technological developments that space race had brought during cold-war. As Hejduk stated for radical avant-garde architects, technology was a missing opportunity in modernism since "the ideology of technology in the modern had not been fully explored and had resulted in fairly disastrous effects."[19] Dessauce describes post-war urban condition as result of modernism as stated,

> "With the congestion and dislocation of cities, the monotony of suburban sprawl, the bleakness of high-rise housing developments, and the pollution of the environment, a vast realm of disenchantment emerged alongside the economic prosperity of postwar years. Whether responsible for or assimilated to this dispirited progress, radical modernism lost in it its effervescence and ethical pretense."[20]

According to the radical avant-garde, technology and "its unrealized potential" could not be effectively used in terms of conveying architectural ideals and subsequently modernism failed to the functionalism of post-war years. On the other hand, what the avant-garde collectives aim was to "exploit technology and rationality in architecture with the hope of counteracting the societal and bodily repressions of late-

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[18] Colomina, Kotsioris, Galán and Meister, "The Radical Pedagogies Project," 33-64.

[19] Renata Hejduk, "Beyond Architecture: Technology, Freedom, and Play," in *94th Annual Meeting of the Association of Collegiate Schools of Architecture*, ed. Renee Cheng and Patrick J. Tripeny (Washington, DC: Association of Collegiate Schools of Architecture, 2006), 230-231.

[20] Dessauce, "On Pneumatic Apparitions," 13.

capitalism."[21] With its strict bond with technology, experimentation used as a tool towards a critical architecture by avant-garde architects in order to "create an architectural image of their philosophy/ideology."[22] They were influenced by technological developments and reflect their ideas with a diversity of experimentations inspired by "the industrial object, the machine, space and submarine capsules, the connivance with pop art, cartoons, etc."[23]

In this context, innovative material technologies and building techniques were experimented to seek new possibilities in quest for formation of the space. Among the experimentations including new technologies and techniques such as plug-ins, plastics, portability to audio-visual environments; "pneumatic" or "inflatable" structures have an important role. These explorations led to a paradigm shift in architectural discourse, which ephemeral and lightweight structures were explored in order to challenge "traditional" space production techniques, such as reinforced concrete and masonry. In the rest of the chapter, a series of key works and events which emphasizes the use of inflatables in architecture during the late 1960's and 1970's will be presented to discuss the origins of this new strand and its relation with the dominating architectural discourse.

2.2. A Brief History of Inflatable Architecture

Besides the experimental practices, late 1960's and 1970's were also vital times with social creativity in terms of producing seminal theoretical works and social events. In this context, scrutinizing architectural publishing in this period could be an effective way to specify significant works and events and to discuss the shift in architectural design and its discourse propagated through cultural changes.

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[21] Hejduk, Beyond Architecture, 231.

[22] Ibid., 232.

[23] Jean-Paul Jungmann, "Statements," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 66-67.

According to Colomina, the increase in number of "little architectural magazines"[24] during the 1960's and 1970's is directly associated with "the radical transformation in the architectural culture,"[25] insomuch that these "little magazines -more than buildings- were the site of innovation and debate in architecture."[26] In other words, it could be inferred that the radicalism of that time had an impact on architectural publishing towards a critical architecture. During this period, these magazines served as an "infrastructure for hosting change"[27] by creating platforms to exchange visionary ideas on space experimentations and related discussions.

As Colomina stated, sometimes professional magazines acted like little magazines for certain periods of time and these "moments of littleness" were spread its criticality over big magazines. [28] Particularly in the "Architectural Design" (AD) magazine from the beginning of the late 1960's, this tendency was quite obvious. The editor of AD, Monica Pigeon with technical editors Peter Murray and Robin Middleton dropped advertising, changed the quality of paper and published the same kind of work with little magazines, thus it opened up to the new themes such as ecology, counter-culture,

[24]As a term coined in the early twentieth century, "little magazine" in architecture refers to "small circulation, self-published magazines, often difficult to obtain and produced with little or no support, on kitchen tables or in the backrooms of schools." Beatriz Colomina, "Portable utopias: Little magazines in architecture during the 1960s and 1970s," *Eurozine*, July 7, 2018, accessed September 12, 2018, https://www.eurozine.com/portable-utopias/. The essay is prepublication from the forth coming collection The Legacy of Transgressive Objects (ed. Katja Müller-Helle), contributed by Beatriz Colomina, Tacita Dean, Dennis Göttel, Helmut Lethen, Jeannie Moser, Katja Müller-Helle, Eva Wilson, Claus Pias.

[25] Ibid.

[26] Ibid.

[27] Ibid.

[28] With the phrase "moments of littleness," Colomina refers to the times that professional architectural magazines undergo radical changes: from the types of paper and printing methods, to the kinds of projects reviewed. Besides the Architectural Design magazine in the mid-1960s and 1970s, Colomina exemplifies this phenomenon with the Casabella of Alessandro Mendini (1970–76), the Bau of Hans Hollein, Günter Feurstein and Walter Pichler (1965–70), the Domus of Gio Ponti (1970s), or the Aujourd'hui: Art et architecture of André Bloc (1955–1967). Ibid.

new materials, electronic technology, mobility and disposability started to appear in AD, especially in a section called as "Cosmorama."[29] These attempts shows that AD pursued an attitude towards the criticality and had already embraced an "idea-led direction"[30] like its contemporaries at that time. However, June 1968 issue titled as "Pneu World" was still worthy of note since it showed a "distinct shift away from building themes."[31] It did not include any conventional building reviews or its related discourse, but focused only on "inflatables in architecture." All issue was comprised of new ideas and experimentations with inflatable and air supported structures, and their practices. In this context, this issue of AD was a sign to easily claim that the strand of "inflatable architecture" had spread in architectural publishing.

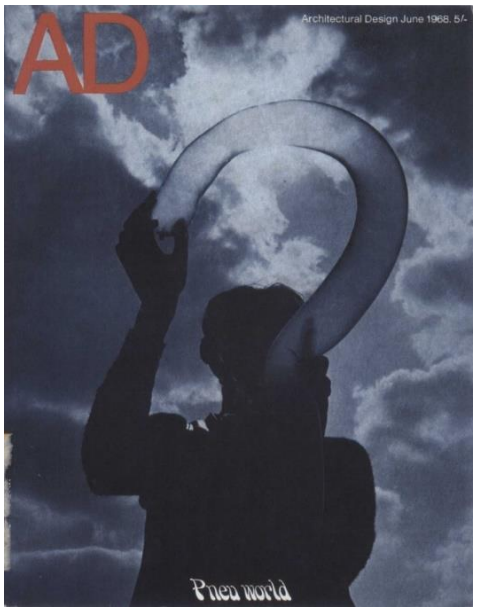

Figure 2.3. AD's cover of June 1968's issue on inflatables.

Source: Steve Parnell, Architectural design, 1954-1972 Ph.D., University of Sheffield, 2012: 218.

[29] Ibid.

[30] Steve Parnell uses the phrase "idea-led direction" for a tendency which is formed by "concentrating on the non-visual discourses that shape the city - the forces of politics and socio-economics - rather than the normal visualisable aspects of architecture." See Steve Parnell, "Architectural design, 1954-1972" (Ph.D., University of Sheffield, 2012), 221, http://etheses.whiterose.ac.uk/14585/1/573129.pdf

[31] Ibid.

Besides professional magazines, some collectives who were enthusiastic to share their ideas on inflatable structures published their own journals, booklets or even manuals such as "Inflatocookbook." As a small circulation magazine, it was self-published in January 1971 by the group called “Ant Farm,” then it had a place in April 1971’s issue of AD. “Chip Lord,” one of the members of “Ant Farm,” uses the definition of “a how-to manual, a cookbook” [32] to describe their attempt. In other words, it was basically an illustrated guide which depicted how to create do-it-yourself pneumatics and aimed to “gather information and skills learned in process and present it in an easily accessible format”[33] and thus instruct users to construct their own “fast, cheap inflatables out of polyethylene and tape and support them with used fans.”[34]

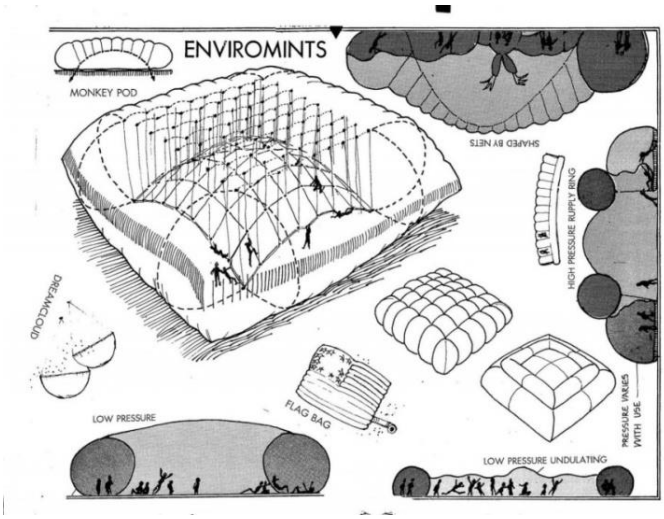

Figure 2.4. A page from Inflatocookbook.

Source: Official Website of MIT Media Lab. 14 Oct. 2018.

<https://alumni.media.mit.edu/~bcroy/inflato-splitpages-small.pdf>

[32] The definition was excerpted from Lydia Kallipoliti’s interview with Chip Lord and Curtis Schreier who were members of collective editorial board of Inflatocookbook and members of Ant Farm. See, Chip Lord and Curtis Schreier, interview by Lydia Kallipoliti, in *Clip, Stamp, Fold: The Radical Architecture of Little Magazines 196X to 197X*, eds. Beatriz Colomina and Craig Buckley (New York: Princeton University Press, 2010), 409.

[33] Ant Farm, *Inflatocookbook,* (1971. Reprint, San Francisco: Ant Corp, 1973), 3.

[34] Ibid.

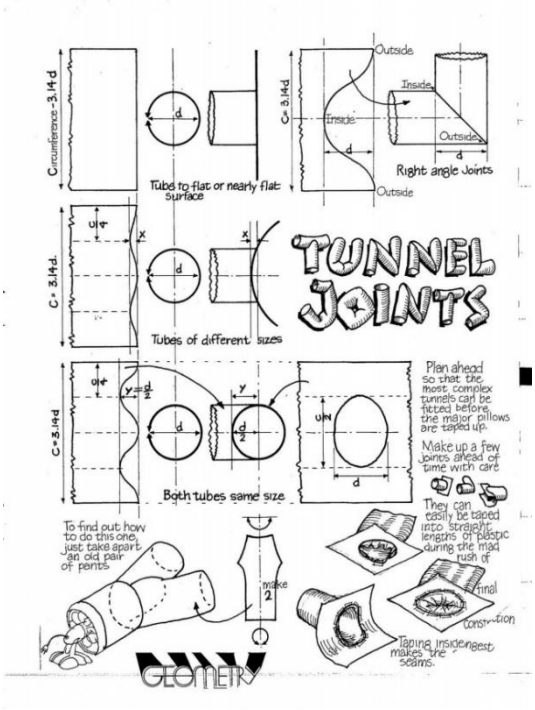

Figure 2.5. A page from Inflatocookbook.

Source: Official Website of MIT Media Lab. 14 Oct. 2018.

<https://alumni.media.mit.edu/~bcroy/inflato-splitpages-small.pdf>

Like Ant Farm, other avant-garde architects made some publications on inflatable architecture. Among these, Cedric Price was a leading figure who influenced avant-garde collectives with his radical ideas on space experimentations. In Price's works, technology played an important role as a notion "based on the paradigm of a flexible network rather than a static structure."[35]

In this context, Cedric Price and Frank Newby's "Air Structures Bibliography" was also an extensive guide in terms of showing the expanded possibilities of pneumatic technologies. The bibliography, consisting of 240 pages, was published in 1972 and it was a product of the comprehensive investigation which held by the Lightweight

[35] Terence Riley, "The Megastructure," in *The changing of the avant-garde: visionary architectural drawings from the Howard Gilman collection*, ed. Harriet Schoenholz Bee (New York: The Museum of Modern Art, 2002), 56.

Enclosures Unit (LEU).[36] As Bratishenko stated, "Air Structures Bibliography" was an informative document "like a database"[37] with "conference proceedings, published articles, books, and key texts on the subject of pneumatics."[38] Therefore, Cedric Price became a forerunner of the interest on inflatable architecture insomuch that he appeared on the cover of AD's October issue in 1970. On the cover, there was a cartoon depicting Price as he was "inflating himself."

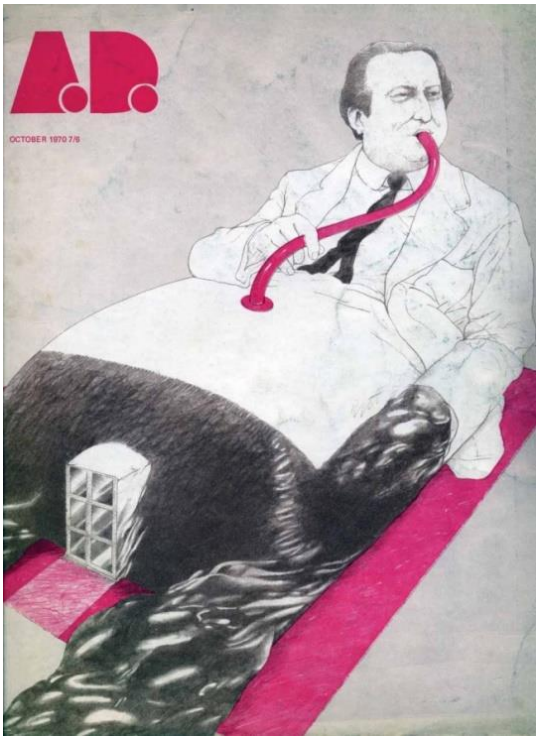

Figure 2.6. Adrian George, Cedric Price inflating himself, AD's Cover of October 1970's issue.

Source: Steve Parnell, Architectural design, 1954-1972 Ph.D., University of Sheffield, 2012: 226.

[36] Lightweight Enclosures Unit (LEU) was an institution formed by Price and Newby in the United Kingdom in 1969.

[37] Lev Bratishenko was the editor of publications at the Canadian Centre for Architecture when the article was published. See Patrick Sisson, "More Than Hot Air: The Lasting Impact of Inflatable Architecture," *Curbed*, January 21, 2016, accessed October 14, 2018, https://www.curbed.com/2016/1/21/10844774/inflatable-architecture-geodesic-dome-design-legacy.

[38] Whitney Moon, "Cedric Price: Radical Pragmatist, in Pursuit of Lightness," *Journal of Architectural Education* 71, no.2 (2017): 177, https://doi.org/10.1080/10464883.2017.1340772.

In his article titled as "Monumental Windbag" in New Society in April 1968, Banham mentioned the increasing interest in inflatables as:

> "The inflatable scene is getting pretty densely populated, and spreads wide: from a window-full of Blow-up furniture at Habitat, to a contract between Cedric Price, Frank Newby and the M of PWB for advanced research in inflatable structures: from aluminized Warhol *Clouds* floating round Robert Fraser's gallery, to the close-packed maths of Frei Otto's *Zugbeanspruchte Konstruktionen*: from a nude in a transparent Quasar Khanh chair on the cover of *Zeta*, to an exhibition of *Structures Gonflables* last month in Paris."[39]

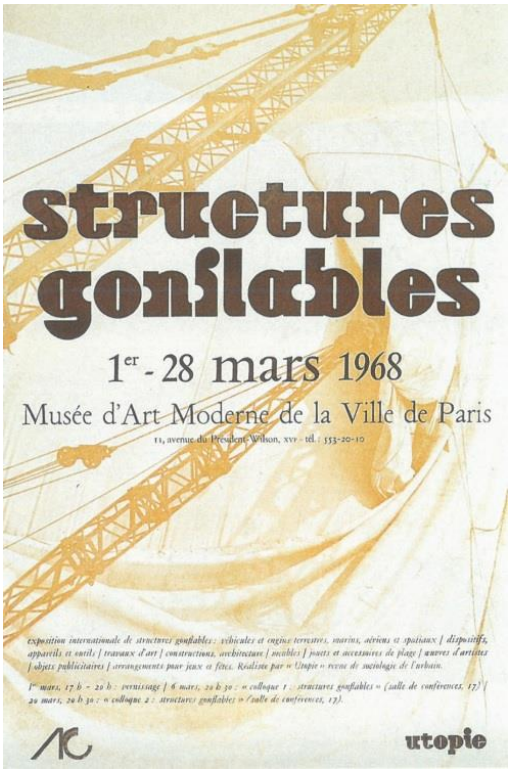

Figure 2.7. Utopie "Structures Gonflables", exhibition poster, Paris, March 1968.

Source: Marc Dessauce, The Inflatable Moment: Pneumatics and Protest in '68 New York: Princeton Architectural Press, 1999: 27

[39] Reyner Banham, "Monumental Windbags," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 31-33. The article was originally published in *New Society: Arts in Society* (18 April 1968 vol. 11, no. 290), 569-570.

For inflatable scenes, “Structures Gonflables” (Inflatable Structures) was a notable exhibition organized by “Utopie”[40] group at the Paris Musee d'Art Moderne in March 1968. For the exhibition, the group has gathered over one hundred pneumatic objects including “vehicles for land, sea, air, and space; machines and tools: security and protection devices; tanks, joints, shocks, molds, and cofferings; works of engineering and architecture; furniture, artworks, advertising props, and devices for entertainment and festivities.”[41]

Since most of the exhibited objects were daily life objects, the exhibition could be considered as an attempt to relate the architectural space with the culture transforming deliberately. As cited by Marc Dessauce, Pierre Gaudibert, one of the curators at the museum, evaluated the exhibition as "the promising sign of a penetration of the aesthetic of everyday into the realm of the museum.”[42] In this regard, the exhibition “Structures Gonflables” was also one of the signifiers which express the criticality of radical avant-gardes. The group’s desire to challenge the “traditional” architecture and its concepts such as “weight, permanence, expense and immobility”[43] matched perfectly with their interest in inflatables. Thus, inflatables became an instrument to counteract to modernism’s tropes not only for Utopie, but also for other avant-garde collectives.

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[40] Rooted in Ecole Nationale Supérieure des Beaux-Arts, Utopie was a group around the magazine “Utopie” with an editorial team including architects, urban planners and sociologists: Jean Aubert, Isabelle Auricoste, Jean Baudrillard, Catherine Cot, Jean-Paul Jungmann, René Lourau, Antoine Stinco and Hubert Tonka which was active in Paris from 1967 to 1978.

[41] Marc Dessauce, “Structures Gonflables,” in *The Inflatable Moment: Pneumatics and Protest in ‘68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 27.

[42] Ibid.

[43] Rosalie Genevro, “Introduction,” in *The Inflatable Moment: Pneumatics and Protest in ‘68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 8.

Figure 2.8. Utopie "Structures Gonflables" at the Musee d'Art Moderne, Paris, 1968.

Source: Official Website of Jean-Paul Jungmann. 8 Sep. 2018.

< http://www.jeanpauljungmann.fr/expo_structures.htm>

Figure 2.9. Utopie "Structures Gonflables" at the Musee d'Art Moderne, Paris, 1968.

Source: Official Website of Jean-Paul Jungmann. 8 Sep. 2018.

< http://www.jeanpauljungmann.fr/expo_structures.htm>

"Structures Gonflables" was not Banham's first encounter with inflatable technology. Indeed, he published an article in April 1965, titled as "A Home Is Not a House" with the proposal of "a portable bubble environment". In the article which was illustrated by French architect and artist François Dallegret, Banham opposed the traditional concept of "house" as a physical representation of "home" and referred to the phrase of "hollow shell"[44] to critique Northern American tradition of house. He claims that the shell is inadequate in terms of some necessities such as heating and cooling so that "Americans have always been prepared to pump more heat, light and power into their shelters than have other peoples."[45]

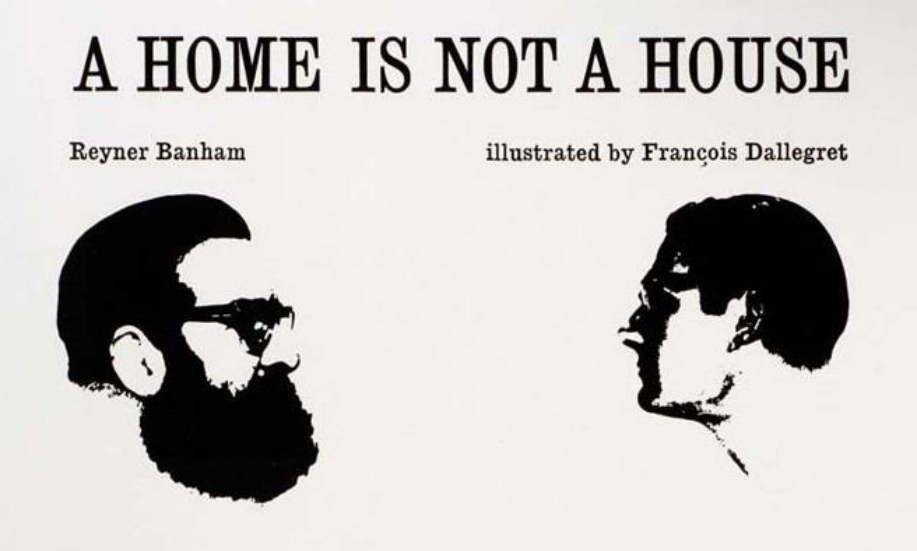

Figure 2.10. Reyner Banham + François Dallegret, title page "When" from the article "A Home Is Not a House," 1965.

Source: Official Website of Frac Centre-Val de Loire. 20 Oct. 2018.

< http://www.frac-centre.fr/_en/art-and-architecture-collection/dallegret-francois/a-home-not-house-317.html?authID=49&ensembleID=126>

[44] Banham excerpts the phrase "hollow shell" from "The Weather-Conditioned House" of Groff Conklin and use the quotation: "A house is nothing but a hollow shell...a shell is all a house or any structure in which human beings live and work, really is. And most shells in nature are extraordinarily inefficient barriers to cold and heat…" See Reyner Banham, "A Home is not a House," *Art in America* 53, no. 2 (1965): 73.

[45] Ibid.

The article starts with some rhetorical questions:

> "When your house contains such a complex of piping, flues, ducts, wires, lights, inlets, outlets, ovens, sinks, refuse disposers, hi-fi reverberators, antennae, conduits, freezers, heaters-when it contains so many services that the hard-ware could stand up by itself without any assistance from the house, why have a house to hold it up? When the cost of all this tackle is half of the total outlay (or more, as it often is) what is the house doing except concealing your mechanical pudenda from the stares of folks on the sidewalk?"[46]

Starting from this, Banham offered a counter-idea: "the environment bubble". In the bubble, inflatable technology was used to separate interior from exterior instead of the structural elements of traditional house such as columns, beams and slabs. However, it was combined with "a transportable standard-of-living package" including a TV screen, a refrigerator unit, an electric cooker, stereo speakers, exchangeable power packs and electronic controls, floodlamps, even a solar power collector and on the center of the whole system; an air blast for environmental control and to support package.

To illustrate Banham's radical ideas, Dallegret produced six drawings. Among these drawings, the one titled as "Un-House. Transportable Standard-of-Living Package" depicted "the environment bubble" located on the top of a rock. In the drawing, Banham and Dallegret were sitting naked under the transparent membrane around "the transportable standard-of-living package" so that they could perform the necessities of everyday life. In this way, "The Environment Bubble" refers to "a domesticated utopia equipped with modern amenities, freed from the fixity and permanence of the traditional home."[47] Through the idea of bubble, inflatables brought the emancipatory practices in the form of architectural innovations. In this context, the article "A Home

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[46] Ibid, 70.

[47] Whitney Moon, "Pneumatic Decoys: Blowing Up Architecture," in *WORKING OUT | thinking while building,* Proceedings of the ACSA Fall Conference, ed. Ted Cavanagh, Ursula Hartig & Sergio Palleroni (Halifax: N.S.: ACSA Press, 2014), 364.

Is Not a House" is a seminal text because of that it captured "the seismic shift in the way architecture's relationship to technology was understood after the founding myths of modernism fell away."[48]

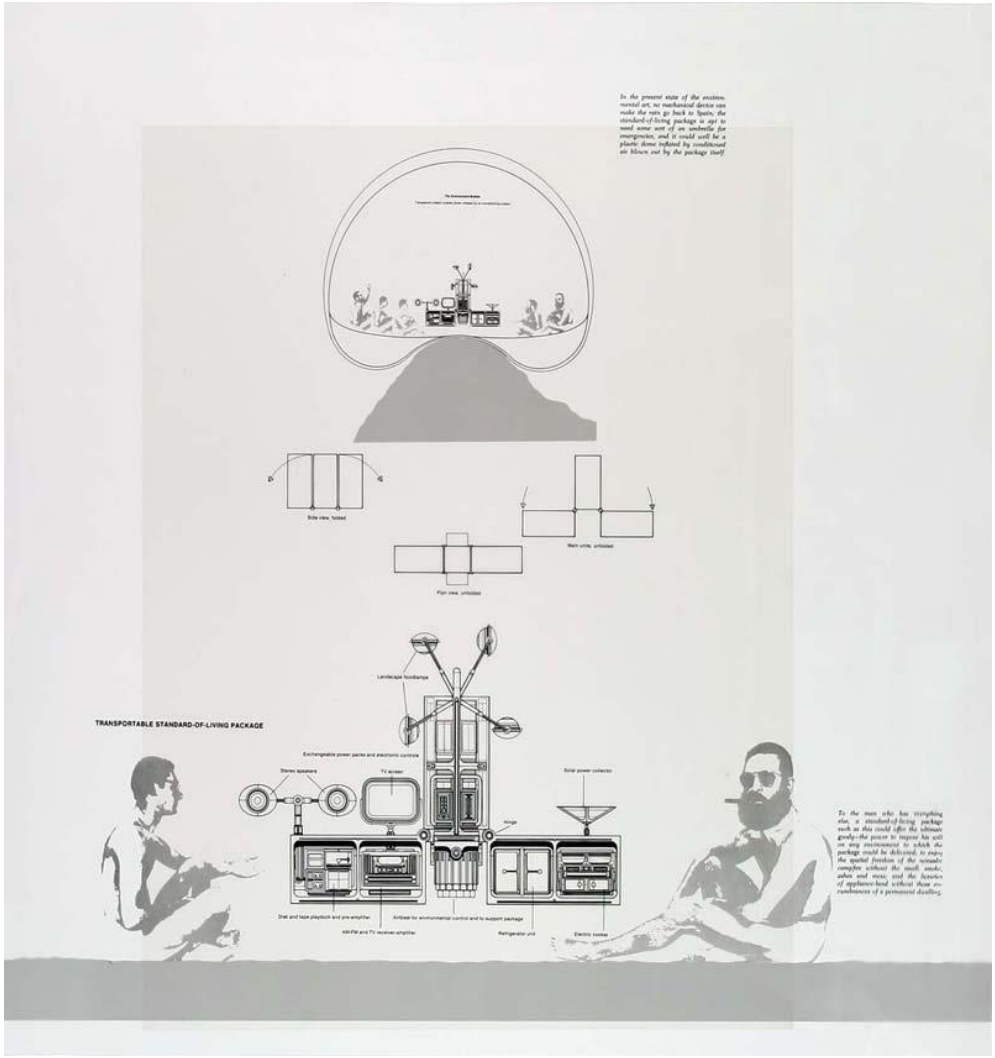

Figure 2.11. Reyner Banham + François Dallegret, "Un-House. Transportable Standard-of-Living Package" from "A Home Is Not a House," 1965.

Source: Official Website of Frac Centre-Val de Loire. 20 Oct. 2018.

<http://www.frac-centre.fr/_en/art-and-architecture-collection/dallegret-francois/a-home-not-house-317.html?authID=49&ensembleID=126>

[48] Robert M. Rubin, "Unveiling the Unhouse," *Art in America*, March 12, 2015, accessed October 21, 2018, https://www.artinamericamagazine.com/news-features/magazines/unveiling-the-unhouse/.

Among these key works and events, EXPO'70 was seen as a manifestation in terms of "situating the moment's institutionalization"[49] since it represented a world-wide interest in inflatable architecture. The fair was held between March 15 and September 13 1970 in Osaka, Japan and it showcased 116 pavilions under the theme "Progress and Harmony for Mankind" from 78 countries with visitors exceeding 64 million.[50] Kenzo Tange and 12 other Japanese architects were commissioned to design the master plan of EXPO'70 and they agreed to design a common place which divided the exposition site in south-north direction and locate the pavilions on the both sides of this axis. The common place in the center of Expo site was covered with a space-frame roof, nearly half a kilometer long and fifty meters high and it was named as "Symbol Zone."[51]

Figure 2.12. A view from "Symbol Zone", Expo'70, Osaka, 1970.

Source: Official Website of Verso. 27 Oct. 2018.

< https://www.versobooks.com/blogs/2481-megastructure-visions-an-extract-from-last-futures>

[49] Marc Dessauce, "Annotated Catalog of Works," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 112.

[50] "1970 Osaka," Expo Museum, accessed October 26, 2018, http://www.expomuseum.com/1970/.

[51] Douglas Murphy, "Megastructure Visions—an extract from Last Futures," *Verso*, February 5, 2016, accessed October 27, 2018, https://www.versobooks.com/blogs/2481-megastructure-visions-an-extract-from-last-futures/. The essay is an edited extract from the book "Last Futures: Nature, Technology, and the End of Architecture" by Douglas Murphy.

EXPO'70 was a significant event in terms of "providing an international platform to exchange ideas and information." The main principle of master plan was directly served for this purpose: enhancing the communication and contributing to the network between the practitioners of experimental ideas. Through the design of a focal space that allowed public encounters, Expo'70 stood out amongst previous expositions. The "Symbol Zone" consisted of some subspaces such as the Festival Plaza as a central feature of "Symbol Zone," the Central Gate, the Theme Hall, the Auditorium, the Art Gallery, the Main Building and the Observation Tower so that it had room for gathering people around the activities and performances.[52]

By designing spaces for information and its exchange in exposition site, Tange aimed to express the shift from exhibiting the "hardware" to the "software". With his words:

> "During the stage of an industrial society, world expositions had the cultural-historical significance of 'exposing' physical things, such as technology and the fruits of scientific engineering. However, such a form [of display] doesn't have much meaning in the current age, in which we are progressing into an 'information society.' Rather than displaying hardware, or going to see it, isn't it more meaningful to create a software-like environment? Instead [of the old type of expo], we should gather together to exchange direct communication between people, each bringing our own cultures or non-physical traditions to exchange. Rather than an exposition, it would be a festival."[53]

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[52] Kenzo Tange, "The Significance of World Expositions," *Japan Architect 42*, no. 133 (August, 1968): 29-30, quoted in Pieter van Wesemael, *Architecture to Instinct and Delight: A Socio-historical Analysis of the World Exhibition as a Didactic Phenomenon (1798-1851-1970)* (Rotterdam: 010 publishers, 2001), 816.

[53] Kenzo Tange, "Nihon bankoku hakurankai no motarasu mono (What the Japan Expo Will Bring About)," interviewed by Noboru Kawazoe, *Shin Kenchiku (New Architecture) 45*, no. 5 (May, 1970): 147, quoted in William O. Gardner, "The 1970 Osaka Expo And/As Science Fiction," *Review of Japanese Culture and Society* 23, no. 1 (December, 2011): 35. http://works.swarthmore.edu/fac-japanese/16.

Figure 2.13. A postcard showing the aerial view of Expo site, Expo'70, Osaka, 1970.

Source: Old Tokyo-Vintage Japanese Postcard Museum. 29 Oct. 2018.

<http://www.oldtokyo.com/expo-70-osaka-1970/>

Besides being a "software-like environment" as the meeting place for visionary architects, the exposition also enabled that many experimental projects were realized in the exposition site. Among these experimental projects, the inflatable idea became prominent as one of the main themes of Expo'70 since the pneumatic scenes were in harmony with the futuristic image of the whole exposition site.

The theme was accentuated in both of the national and corporate pavilions and gave significant examples such as US Pavilion with its air supported dome, Ricoh Pavilion as a landmark with light installations projecting onto its huge balloon structure at night or Fuji Group Pavilion as the largest air-inflated structure in the world at that time. In this context, EXPO'70 could be regarded as "the ultimate showcase of inflatable design"[54] by displaying new possibilities of architectural space with the aid of innovative materials and techniques.

[54] Genevro, "Introduction," 9.

Figure 2.14. Yutaka Murata "Fuji Group Pavilion" for Expo'70, Osaka, 1970.

Source: Old Tokyo-Vintage Japanese Postcard Museum. 29 Oct. 2018.

<http://www.oldtokyo.com/expo-70-osaka-1970/>

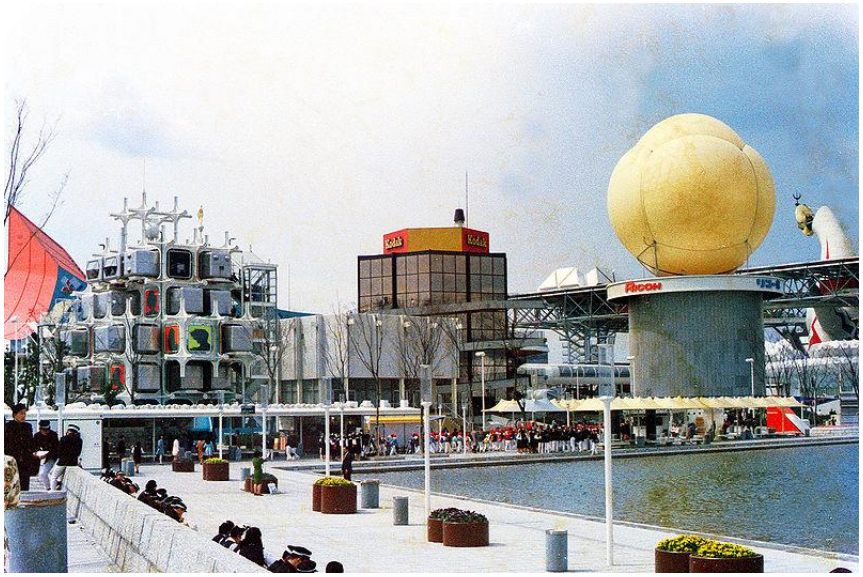

Figure 2.15. From left to right: "Takara Beautillion," "Kodak Pavilion," and "Ricoh Pavilion" for Expo'70, Osaka, 1970.

Source: Wikimedia. 29 Oct. 2018.

<https://commons.wikimedia.org/wiki/File:Osaka_Expo%2770_Kodak%2BRicoh_Pavilion.jpg>

Considering the productivity of the late 1960's and 1970's, the abovementioned works and events constitute only a small portion in the whole, though they were selected as leading examples in terms of their impacts on contributing debates and discussions in architectural discourse. The criticality propagated by cultural changes was the essence of the period and changed the practitioners' approach to design. As reported by Andrea Lo, Sean Anderson point outs this criticality as follows:

> "The events that were happening on a local, national and regional scale arguably affected the way in which architects and designers started to approach not only for whom they were designing, but why (they were designing)."[55]

As a conclusion of the questioning, radical architects were required to search new methods for expressing "their" objectives of designing space. Thus, they explored inflatables not only as an innovative material for pushing the limitations of the physical space but also as a medium for expansion to engage social and political aspects of architecture.

[55] Sean Anderson is associate curator in the department of architecture and design at The Museum of Modern Art. See Andrea Lo, "How the 1960s and 1970s inspired radical architecture," *CNN*, May 16, 2018, accessed October 30, 2018, https://edition.cnn.com/style/article/radical-architecture/index.html.

CHAPTER 3

NEW RELATIONS

As it was claimed in the previous chapter, inflatable works of avant-gardes establish strong bonds with the formation of architectural discourse. This makes inflatables powerful rhetorical objects since they allow the practitioners to express their criticality propagated by cultural changes. In this context, these practices are not only tools for experimenting with architectural space but also agents to understand new elements, concepts, relations and parameters leading to a paradigm shift in the architectural discourse.

This part of study proposes to examine these inflatable spaces that were designed by avant-garde architects of late 1960's and early 1970's to track the shift in architectural thinking. In order to make a critical inquiry into inflatable structures as discursive practices, introducing new elements and relations of the space in architectural discourse is required. Through the inquiry, this chapter aims to draw an overall frame for this new thinking of space in the period of social, political and cultural upheaval of 1960's and reveal the congruence of the ideas of radical avant-garde architects of that time.

In line with this objective, new elements and relations that make the shift visible will be covered in five subtitles in the scope of inflatable works of avant-gardes: space-site, space-form, space-material, space-user and space-time. Each subtitle will be discussed with the examples of inflatable ideas and debates on the "redefinition" of architectural space and thus they will be interpreted as tools to read the epistemological shifts in architectural discourse.

3.1. Space - Site

3.1.1. Mobility

As indicated in the second chapter, architectural thought and production underwent a radical change in parallel with the transformation of the culture during 1960's and 1970's. In this redefinition of architectural space that a young generation of architects strived for, "site" was critiqued in terms of its relation with spatiality. Inflatable structures were the objects of this critique with their opposition to the established relationship between site and space. In his book "Plastics and Architecture," pioneering British architect Arthur Ouarmby regarded pneumatics as "the most important discovery ever made in architecture… (since) they can free the living environment from the constraints which have bound it since history began…"[56] In this context, inflatable technology could be considered as a medium to express the liberation on built environment through their capability in creating mobile environments and transcend the constraints imposed by the conventional idea of "site as a fixed, geographical entity."

The necessity for mobility was grounded to the critique of the existing spaces for living and working. As Brayer states, it emerged out as "a reaction against the hyperfunctionalism of the post-war years."[57] Especially at the workspaces, this hyperfunctionalism appeared in the form of "standardised work spaces and mono-functionality"[58] as a result of "the hierarchical organisation of work and the demands of productivity"[59] In other words, the critique of hyperfunctionality of modernist space

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[56] Arthur Quarmby, *Plastics and Architecture* (New York: Praeger Publications, 1974), 114.

[57] Marie-Ange Brayer, "Work and Play in Experimental Architecture, 1960-1970," translated from French by Orhan Memed, *Stream*, no. 2 (2012), accessed December 13, 2018, https://www.pca-stream.com/en/articles/work-and-play-in-experimental-architecture-1960-1970-57.

[58] Ibid.

[59] Ibid.

extended with an anti-establishmentarian approach and this approach of avant-garde architects directly opposed to the ordinary and same spaces since these spaces were seen as the imposing structures of the existing organization of labour and its promoted lifestyles. Instead, what avant-garde architects offered was to alter spatial qualities of existing rigid spaces and their relations with site by introducing the nomadic modes of work and live.

In the interpretations of nomadic modes of work and live, inflatable spaces reflected an emancipation on architectural space through its mobility. Inflatables as the structures which were "simple to put up and, crucially, easy to take down"[60] generated mobile environments and met the needs of the shifting architectural space. In this redefinition of architectural space introduced by the avant-garde architectural practices, one could have inhabited under the envelope of inflatable structure anytime and anywhere.

As an installation showing the shift on the spatial relations of site, Hans Hollein's "Mobile Office" displayed a mobile working environment in the bubble form. The installation produced for a TV sequel[61] about Hollein and his works, consisted of "PVC-foil, a vacuum cleaner, a typewriter (Hermes Baby), a telephone, a drawing board, a pencil, rubber, and thumbtacks."[62] In this environment produced in 1969, Hollein was being recorded by a camera while he was sitting on the grass inside his

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[60] Hadas A. Steiner, "Bubbles: The Triumph of Software," in *Beyond Archigram: The Structure of Circulation* (New York: Routledge, 2009), 158.

[61] The installation "Mobile Office," or the "Transportable Studio in a Suitcase" was produced as a part of the TV series: Das österreichische Portrait (The Austrian Portrait) which was aired on Austrian television on December 12, 1969. As an excerpt of the TV-documentary, the performance took 2:27 minutes and was shot in black and white. See, Hans Hollein, "Mobiles Büro," 1969, GF0002111.00.0-2004, Online Collection of Generali Foundation, accessed on December 25, 2018. http://foundation.generali.at/en/collection/artist/hollein-hans/artwork/mobilesbuero.html?nomobile=1#letter=F.

[62] Andreas Rumpfhuber, "The architect as entrepreneurial self: Hans Hollein's TV performance "Mobile Office" (1969)," in *The Architect as Worker: Immaterial Labor, the Creative Class, and the Politics of Design*, ed. Peggy Deamer (London: Bloomsbury Publishing PLC, 2015), 44.

inflatable portable office, drawing on a board and talking with a client on the telephone. The inflatable mobile office that he proposed provided a workspace transforming through the user's needs by constructing their own environment with the aid of a PVC bubble. In Hollein's case, the bubble turned into the environment which was satisfying certain needs of an architect in a workspace such as writing, drawing or communicating with the clients. In this way, it enabled Hollein the flexibility to work from anywhere, even on the grass at an airport while waiting for the next flight.

Figure 3.1. Hans Hollein, "Mobile Office," 1969.

Source: Official Website of Hans Hollein. 19 Dec. 2018.

< http://www.hollein.com/eng/Architecture/Nations/Austria/Mobiles-Buero-Mobile-Office>

The flexibility enabled by bubble environments referred to the physical qualities of the inflatable structures. Inflatables as lightweight and modular structures were easy to transport. Thus, they were used in creating mobile environments that reassessed the established spatial relations with the site. As in the example of "Mobile Office" inflatable structures agreed well with the rhetoric of nomadic since it allowed for mobility. In this context, the nomadicity of environment was introduced as a possibility which enhanced the liberation of built environment together with the

liberation of subject. In the scope of relation between subject and built environment, Brayer evaluates "Mobile Office" with these words:

> "This installation, which puts into practice the notion of deterritorialisation, takes into account the new modes of behaviour. The mobility of the technological tools of communication has transformed architecture into a portable micro-environment. Work space has no fixed place nor form: it depends only on its occupant and the activities that take place there."[63]

In a similar way, Moon stated that the relationship between "the formal, material and spatial innovation enabled by pneumatics" and "how we live, work and play" is two-sided, which means they both affect each other, in turn. [64] In this relationship, pneumatics stands out from other mediums of technological innovations reflected in architectural culture, with its ability to "challenge the distinction between private and public space."[65] This challenge was visible in the avant-garde practices of inflatable spaces since the pneumatic envelope allows to create personalized spaces without any rigid structure and thus it provides flexibility to occupants to transform their environments according to the changing modes of behavior and their need for privacy, independent upon the site.

By referencing to the pneumatic envelopes of inflatables spaces and their sublime relation with the privacy, Brayer comments that "Mobile Office" submerges Hollein completely in his environment in a way that he is "neither on the inside nor the outside."[66] Along similar lines, Moon explained that the definitions of private and public space in inflatable environments are not strict as those in the environments produced with conventional techniques and thus the distinction between two could be

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[63] Brayer, "Work and Play in Experimental Architecture, 1960-1970,"

[64] Moon, "Pneumatic Decoys," 364.

[65] Ibid.

[66] Brayer, "Work and Play in Experimental Architecture, 1960-1970,"

easily changed according to their redefinitions. [67] In this sense, inflatables could be regarded not only as an innovative technique of producing architectural space, but also as "a counterpoint to existing architecture" [68] with its opposition to the conventional definitions of public and private space and the strict distinction between them through their flexible natures.

3.1.2. Emancipatory Environments

The desire for mobility was originated from the idea of liberation as a dominant theme of the 1960's and 1970's. As Hejduk stated that the notion of both physical and psychological liberation encouraged by the postwar advancements in technology and materials was a theme to deal with for emerging radical architects of this period.[69] In this context, mobility was promoted with an emancipatory approach to free "site" from the conventional limitations and liberate built environment through the architectural practices of pneumatics technology. Within this frame, the use of inflatables for creating flexible spaces displays a certain enthusiasm to expand traditional boundaries of architectural space.

In the inflatable spaces that were formed by the introduction of the new modes of behavior in the avant-garde scenes of architecture, mobility was defined not only as moving a physical structure from one place to another, but also as enabling the occupants to construct their own environment anywhere, not depending upon that where they are. This extended definition of mobility that the inhabitants and their activities had taken precedence over, aimed to the liberation of human behavior through the liberation of physical space. As David Greene, one of the members of

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[67] For the definitions of private and public space in inflatable environments, Moon uses the word "malleable" which means to "capable of being changed into different shapes by outside forces". With the word "malleable," she refers to the ability of inflatables in changing boundaries between the definitions of private and public spaces through the size and transparency of pneumatic membranes. See, Moon, "Pneumatic Decoys," 364.

[68] Ibid.

[69] Hejduk, "Beyond Architecture," 231.

avant-garde group Archigram, claimed that "more and more people want to determine their own parameters of behavior… people are less and less prepared to accept imposed rules and patterns of behavior."[70] In parallel with his idea, he added a fragment of a poem in Archigram 9:

"I have a desire for
The built environment
To allow me to do
My own thing."[71]

The emancipatory built environments that Greene desired for were exemplified as bubble environments in many works of Archigram. With the isolation from the surroundings that provides, pneumatic bubble regarded as "an architectural prototype of a new paradigm of a creative entrepreneurial subject."[72] Among the attempts of Archigram to construct isolated environments involving gadgets, vehicles and devices such as mechanisms like space capsules or cars, "Cushicle" and "Suitaloon" projects were differentiated from the group's other proposals of mobile minimal environments by enclosing the space with the aid of a pneumatic membrane.

As both two projects designed by Michael Webb from Archigram, the "Cushicle" was published in Archigram 7 in 1966 and the "Suitaloon" followed it in 1967. The "Cushicle" was basically a backpack that enabled the occupants to carry their complete environments and achieve them by inflating out when needed.[73] The

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[70] David Greene, "LAWUN Project No. 1: Gardener's Notebook," *Archigram 9*. Reprinted in *A Guide to Archigram 1961-74,* ed. Dennis Crompton (London: Academy Editions; Berlin: Ernst & Sohn, 1994), 306. Before the 9th issue of Archigram published in 1970, the article was first published in Architectural Design (September 1969 vol. 39, no. 7/6).

[71] Ibid.

[72] Andreas Rumpfhuber, "The architect as entrepreneurial self: Hans Hollein's TV performance "Mobile Office" (1969)," 53.

[73] Michael Webb, "The Cushicle," *Archigram 7*. Reprinted in *A Guide to Archigram 1961-74,* ed. Dennis Crompton (London: Academy Editions; Berlin: Ernst & Sohn, 1994), 186.

proposal was consisted of two parts: the chassis which constituted the "armature" or "spinal" system as a support for carrying the services and the enclosure part which was a multi-layered inflatable envelope with extra skins as viewing screens.[74] The working principle of this mechanism is, when the occupant need to isolate himself / herself from the current environment or just wants to a domestic space to engage in an activity, the chassis altered into its unpacked position and it makes the inflatable envelope blown-up. Through the envelope's opening out, the occupant can transform his/ her environment into an environment that allows for utilizing some services such as "food, water supply, radio, miniature projection television and heating apparatus."[75]

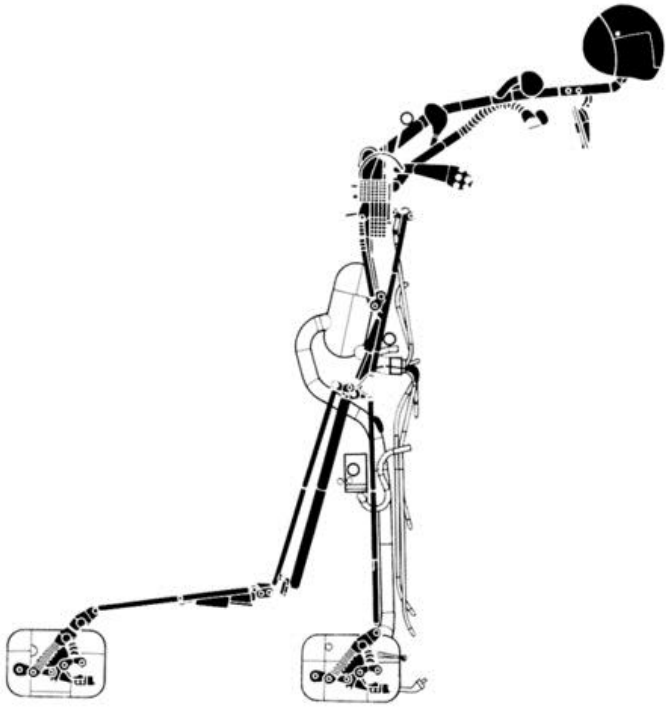

Figure 3.2 Michael Webb, side elevation of the "Cushicle" in its unopened position," 1966.

Source: Archigram Archival Project. 7 Jan. 2019.

<http://archigram.westminster.ac.uk/project.php?id=92>

[74] Ibid.

[75] Ibid.

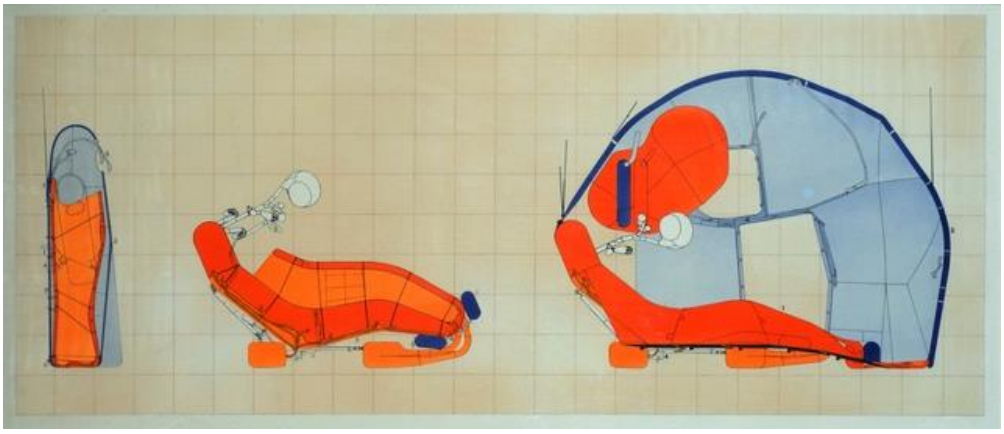

Figure 3.2. Michael Webb, three configurations on the "Cushicle" in its opened position," 1966.

Source: Archigram Archival Project. 7 Jan. 2019.

<http://archigram.westminster.ac.uk/project.php?id=92>

As an improved version of previous "Cushicle" project, the "Suitaloon" refers to a transportable living unit which can be worn like a second skin. Michael Webb described his proposal as "a clothing for living in – or if it wasn't for my Suitaloon I would have to buy a house."[76] The "Suitaloon" as a wearable proposal offers a domestic experience, but in a different way that other capsule like environments do. The difference between their flexibilities can be explained with the notion of mobility that the "Suitaloon" enables. In this context, Steiner compares the flexibility of the capsule and that of the inflatable suit and describes the difference between these two as that "when you wanted to be home, your suit inflated to enclose you."[77] The inflatable suit as a second skin also reevaluates the distinction between public and private spaces by "blurring the boundaries between different kinds of bodily enclosures, of buildings and clothes, of inside and outside"[78] and extends the former avant-garde discussions on privacy which were introduced by the inflatables.

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[76] Michael Webb, "The Suitaloon," *Archigram 8*. Reprinted in *A Guide to Archigram 1961-74,* ed. Dennis Crompton (London: Academy Editions; Berlin: Ernst & Sohn, 1994), 207.

[77] Steiner, "Bubbles," 170.

[78] Ibid.

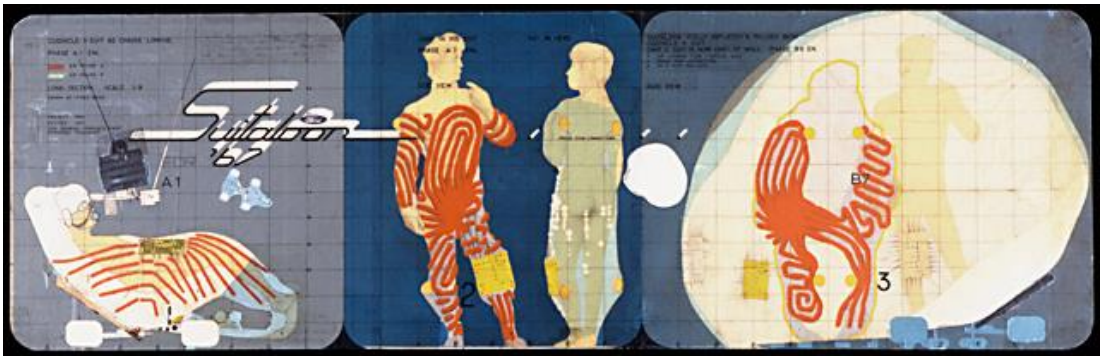

Figure 3.3. Michael Webb, side elevation of three-phase series for the "Suitaloon," 1967.

Source: Archigram Archival Project. 7 Jan. 2019.

<http://archigram.westminster.ac.uk/project.php?id=92>

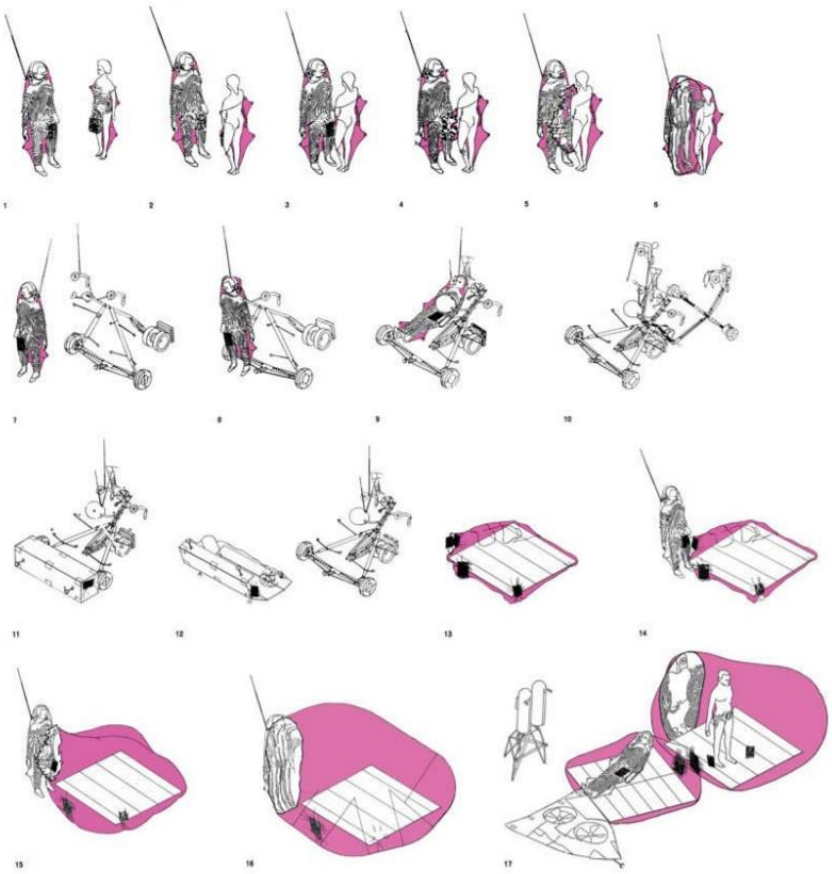

Figure 3.4. Michael Webb, diagrams for the "Suitaloon" proposal, 1967.

Source: Peter Cook, Drawing: The Motive Force of Architecture, West Sussex: Wiley, 2014: 141.

Both of the "Suitaloon" and "Cushicle" proposals were intended to create transportable and compact devices that allow occupants to transform their environment into a domestic space, yet their working mechanisms were slightly different. In the project of "Cushicle," the environment was provided by the whole mechanism of the "Cushicle" itself.[79] On the other hand, the inflatable suit of the "Suitaloon" accommodated all the required services and its "Cushicle" part serves as a "source of (a) movement, (b) a larger envelope than the suit can provide, (c) power."[80] In that manner, the "Suitaloon" project was regarded as an improved version of the previous "Cushicle" project since it was extended with the inflatable suit as a complementary part of the improved design. Consequently, the inflatable suit referred to an independent mechanism that could also work separately from the "Cushicle" part, even that David Greene from the Archigram group was shown up in a mock-up of Webb's "Suitaloon" that was constructed for the "Milanogram" exhibition at the 1968 Milan Triennale.

Figure 3.5. A photograph showing Greene in the mock-up for "Suitaloon," Milan, 1968.

Source: Archigram Archival Project. 7 Jan. 2019.

<http://archigram.westminster.ac.uk/project.php?id=112>

[79] Webb, "The Suitaloon,"

[80] Ibid.

In these radical attempts to emancipate built environments, inflatables served as minimal size envelopes that are accompanied with the all necessary machinery to provide certain services for living and working. In his seminal text "Alles ist Arkitektur," Hollein called environments of this kind as "the extensions of buildings through media of communication,"[81] and points their strong bonds with the notion of mobility as follows:

> "Here is a "house"–far more perfect than any building–with a complete control of bodily functions, provision of food and disposal of waste, coupled with a maximum of mobility."[82]

Quoting some minimal size spaces such as "telephone booth," the "helmets of jet pilots," and the "development of space capsules and space suits" from "Alles Ist Arkitektur," Buckley claimed that dwelling units' becoming smaller contributes to "the expansion of human environment."[83] As illustrated in the "Cushicle" and "Suitaloon" projects, these minimal units were more practical in creating mobile environments when they combined with the inflatable envelopes. Considering that pneumatic technology enabled to construct lightweight and less volumetric[84] membranes, inflatable envelopes were used by avant-garde architects to enhance the possibilities of physical spaces and introduce the notion of mobility into architectural culture as a significant contribution to the liberation of built environment.

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[81] Hans Hollein, "Everything is Architecture," in *Architecture Culture, 1943-1968: A Documentary Anthology*, eds. Joan Ockman and Edward Eigen (New York: Rizzoli, 1993), 2. Originally published as "Alles ist Architektur," in *Bau: Schrift Für Architektur und Städtebau* 20, no. 1/2 (1968): 1-32.

[82] Ibid.

[83] Craig Buckley, "From Absolute to Everything: Taking Possession in "Alles Ist Architektur"," *Grey Room*, no. 28 (Summer, 2007): 114, accessed May 19, 2019, http://www.jstor.org/stable/20442768.

[84] Here, the phrase of "less volumetric" was used to highlight the material characteristics of the inflatable envelope in its packed position rather than the position when it was blown-up. In that manner, it refers to a "thin and easily foldable membrane" that could be practically transportable in its packed position since it is lightweight and covers less space when it is folded.

3.2. Space - Form

3.2.1. Bubble between "Form/ Formlessness": A Critique of "Modernist Box"

The inflatable works of radical avant-garde architects represent a shift in terms of formal concerns of architectural space in that period. In "Monumental Windbag," Banham stated as,

> "The taste that has been turned off by the regular rectangular format of official modern architecture and Bauhaus-revival modern-antique furniture, is turned right on by the apparent do-it-yourself potentialities of low-pressure inflatable technology." [85]

The shift as the result of experimentations with inflatables signifies a departure from the orthogonal expressions that are the "formal tropes"[86] of modernism. Radical avant-garde architects who were motivated to design spaces by using round and organic shapes instead of rigid geometries, experimented with inflatables since the inflatable technology allow flexibility to redefine and extend the boundaries of traditional space.

In this context, the main motivation for using inflatables originated from the criticality of radical avant-garde and their opposition to traditional formation of space. As a challenge to the idea of "modernist box with the formal and material constraints,"[87] ways of the liberation in the formation of architectural space were searched through inflatable experiments during that period.

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[85] Banham, "Monumental Windbags," 31.

[86] The term "trope" is excerpted from Goldhagen's "Something to Talk about: Modernism, Discourse, Style." According to Goldhagen exemplifies the familiar formal tropes of modernism with the words: "Flat roofs. "Transparency" and lots of glass: glass window-walls, glass doors, glass partitions. Reinforced-concrete or metal buildings, tough-edged and stark. Compositions controlled with geometric rigor. Structural armatures split off from building skins, opening up free-flowing spaces articulated lightly with space dividers that barely touch the horizontal planes. A dynamically asymmetrical distribution of spaces. An absence of ornament or historical reference Calvinist in its rigor, an "abstraction," and a resulting emphasis on the compositional play between elements or volumes." See Sarah Williams Goldhagen, "Something to Talk about: Modernism, Discourse, Style," *Journal of the Society of Architectural Historians* 64, no.2 (June, 2005): 144.

[87] Moon, "Pneumatic Decoys," 363.

The collective "Ant Farm" explain their motivation for building inflatables with the words:

> "In case you hadn't figured out a reason or excuse, why to build inflatables becomes obvious as soon as you get people inside. The freedom and instability of the environment where the walls are constantly becoming the ceilings and the ceiling the floor and the door is rolling around the ceiling somewhere releases a lot of energy that is usually confined by the xyz planes of the normal box-room."[88]

The critique of "modernist box" was grounded to the incapability of going out of the xyz planes and limitations of formal expression in traditional space. These limitations led to a rigid and static form which was not allowed for any change. On the other hand, what inflatables offered was the fluidity and dissolution of boundaries between architectural elements such as slabs, walls and ceilings. Through breaking down the traditional boundaries, inflatables could be considered as total structures resembling living organisms.

In a similar way, Banham explained his fascination on inflatable structures with "the tendency to behave like an organism."[89] He states that the behavior of inflatables to an external action causes to a reaction of movement which demonstrates the structure's living and breathing, unlike conventional architecture which stands rigidly, but ultimately reacts with its deterioration.[90] This behavior of inflatables requires to be in "its state of active homeostasis"[91] which provides the ability of response to maintain its internal balance through its membrane cover. The membrane between inside and outside is served as an adaptable layer by regulating the air pumped to interior.

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[88] Ant Farm, *Inflatocookbook*, 3.

[89] Banham, "Monumental Windbags," 33.

[90] Ibid.

[91] Ibid.

In “Towards a New Architecture,” Le Corbusier claims that,

> “A building is like a soap bubble. This bubble is perfect and harmonious if the breath has been evenly distributed and regulated from the inside. The exterior is the result of an interior.”[92]

The idea of covering the space with an adaptive layer recalls Le Corbusier’s metaphor of “the building as a soap bubble,” although the bubble in inflatable structures directly refers to a real skin which separates the exterior from the interior, not a metaphorical envelope. Under this skin, the bubble compasses a totality in its interior entity and thus it responds to external factors as a whole structure. In this context, what makes bubbles harmonious is its adaptability to preserve this totality. The process of adaptation leads to a dynamic form that Steiner describes as the object which is “in a state of constant flux, of form and formlessness”[93] through its transformation.

Besides the formlessness of bubbles, Steiner also mentions about “the formal perfection of the bubble”[94] as a minimal surface. By definition, this feature of soap bubbles is directly linked to its ability to “adopt the shape corresponding to the minimal surface area for the enclosed volume of air.”[95] Based on the fact that “any shape that can be formed as a soap bubble can also be produced as a pneumatic structure,”[96] the studies on soap bubbles are essential for constructing a better understanding of inflatable structures and their volumetric spaces enveloped with the minimal surfaces.

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[92] Le Corbusier, “A Plan Proceeds from Within to Without,” in *Towards a New Architecture*. Translated by Frederick Etchells. (1931. Reprint, New York: Dover, 1986), 181.

[93] Steiner, “Bubbles,” 158.

[94] Ibid, 157.

[95] Conrad Roland, *Frei Otto: Tension Structures,* trans. C.V. Amerongen (New York: Praeger Publications, 1970), 86.

[96] Ibid.

Considering the explorations on form-finding in architecture, Frei Otto was a key figure as he experimented with "soap bubbles" to study on the minimal surfaces. Even though he did not build projects as radical as inflatable structures, he strived for generating "mathematical forms emphasizing the idealized geometry of the bubbles rather than their flexibility or impermanence."[97] In other words, pneumatics was only a tool for experimenting mathematical forms that he wanted to realize in the construction site, yet inflatable structures were not the end products as the consequences of the searches of Frei Otto.

However, Otto's works were also revolutionary for inflatable architecture in terms of highlighting "the idealized geometry of the bubble" not only with the aesthetic concerns, but also with the endeavor to base its formal perfection on a scientific approach. Especially in his book "Zugbeanspruchte Konstruktionen" -which was translated into English as "Tension Structures," Otto presented the possibilities of spaces enabled by the progress in pneumatic technologies, through the different configurations on growth patterns and their articulations. In this context, Otto's formal studies on soap bubbles were important for the practitioners of inflatable structures in the pursuit of a new paradigm over against modernism's formal tropes since they paved the way for formal searches which were enhancing the possibilities of pneumatics and thus the know-how information on the applications at the built environment.

[97] Sean Keller, "The Politics of Form Finding: Frei Otto and Postwar German Architecture," in *Automatic Architecture: Motivating Form after Modernism* (Chicago: University of Chicago Press, 2017), 113.

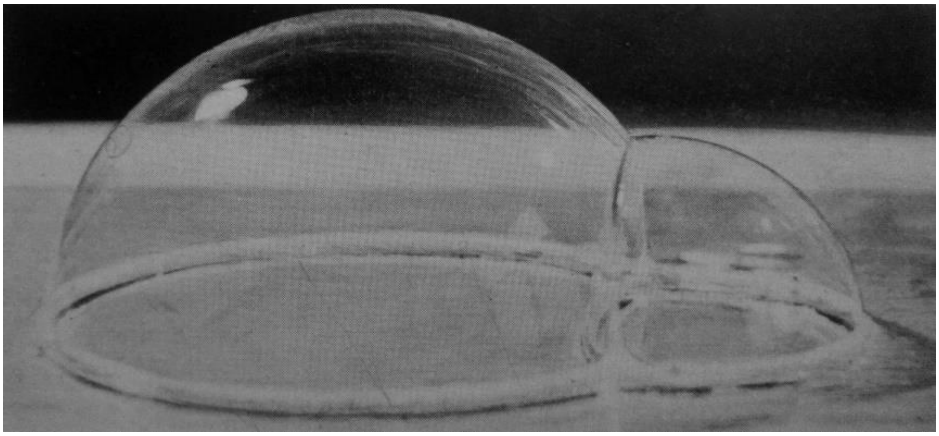

Figure 3.6. A photograph showing Otto's experiments on the "idealized geometry of the bubbles".

Source: Frei Otto, Zugbeanspruchte Konstruktionen, Frankfurt; Berlin: Ullstein, 1962: 12.

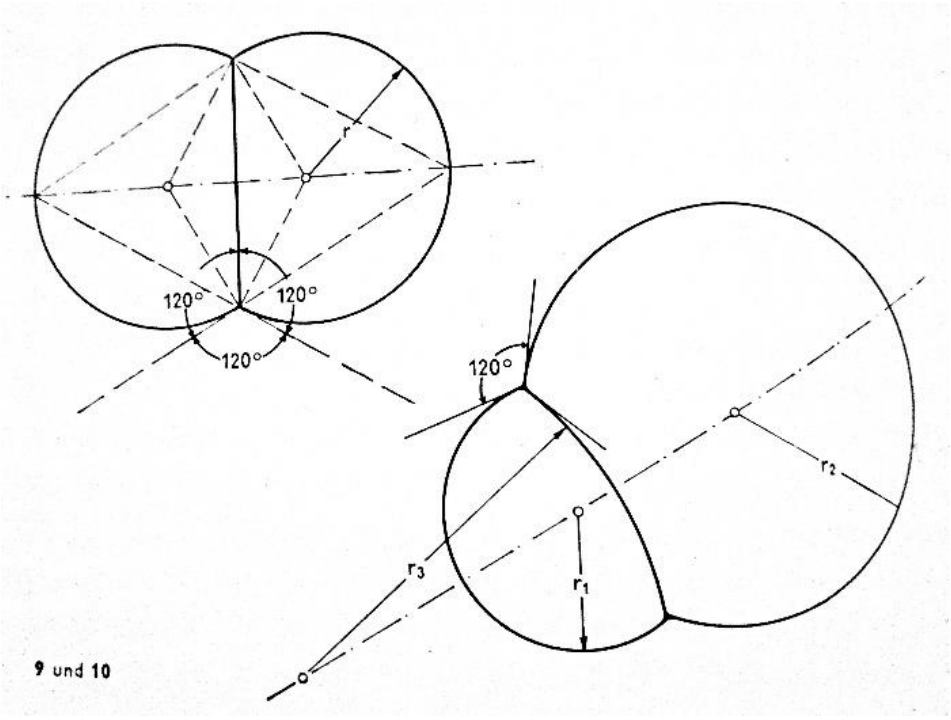

Figure 3.7. Otto's drawings on the different configurations of the bubbles.

Source: Frei Otto, Zugbeanspruchte Konstruktionen, Frankfurt; Berlin: Ullstein, 1962: 13.

As stated before, bubble represents a conflict in form: it has an "idealized geometry" as a minimal surface that envelopes the maximum volume, but at the same time, it offers many instances during its process of adaptation as a dynamic form. Steiner

explains this conflict as "the tension between the formal perfection encapsulated in the suspended bubble and the appealing formlessness of the pneumatic structure"[98] and regards this tension as a key factor in spreading out the idea of bubble among the visionary architects of 1960's to offer an alternative to the static forms of modernism. With his words,

> "Again the tension between form and formlessness was manifest, this time with the added component of never reaching a point where architecture was a finished object; it was always in a stage of adaptation, from its inception to its dissolution. It was in this intrinsic ephemerality, this thematization of transience, that the virtues of pneumatics lay. Everything about responsive, air-supported structure spoke of continuous change."[99]

In brief, for radical avant-garde architects, the bubble idea was a tool to show their criticality to "the modernist box" and building as an end product. With this motivation, their oppositions on form requires to cover not only the physical aspects of the conventional modernist space like its orthogonality and rigid geometries, but also its formal stability achieved with compromising its totality.

3.2.2. Desire for a New Aesthetic

Besides being a way to attack the values of modernism, inflatables was also a medium for avant-garde architects to show their desire for a new aesthetic. This new aesthetic was fed by the images of technological progress during 1960's and 1970's. As a result of the bombardment of visual images regarding scientific developments in the society, science fiction imagery and references to pop-culture were the most common themes in the culture of daily life. Especially through the development on outer space researches accelerated with space race during the cold war, these imageries also influenced the design of architectural space and led to the futuristic ideas in the works

[98] Steiner, "Bubbles," 158.

[99] Ibid, 157.

of counter-culture architects. These futuristic ideas on architectural space were represented with futuristic scenes what Kenneth Frampton described as "the space age look."[100]

As cited by Kennedy, Kenneth Frampton, the well-known architectural historian, claimed that "the space age look" which was embraced by the designers during that era was originated from early airplane and jet design even though it was difficult to disentangle its threads.[101] As a result of this inspiration, the threads of the space age look that began with Buckminster Fuller's geodesic domes and other futuristic ideas could be tracked to some of Archigram's projects like capsule-shape living pods and suits.[102]

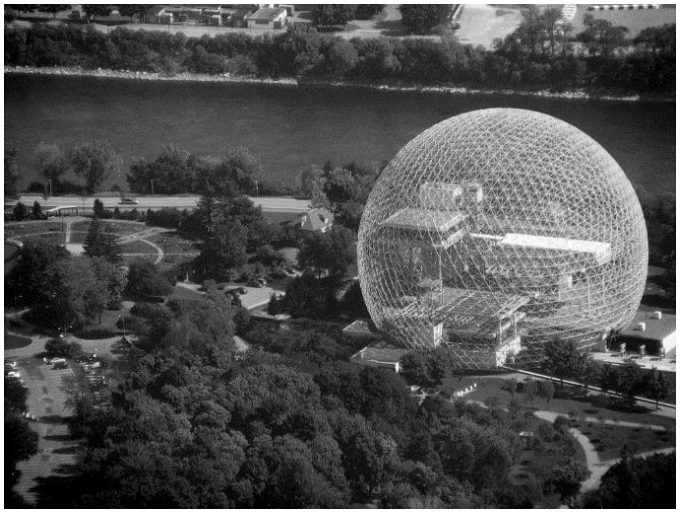

Figure 3.8. Buckminster Fuller, "Montreal Biosphere" for Expo 67, Canada, 1967.

Source: Official Website of Archdaily. 2 Dec. 2018.

<https://www.archdaily.com/572135/ad-classics-montreal-biosphere-buckminster-fuller/547c765be58ececbba0000c4-abdallahh-jpg>

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[100] Randy Kennedy, "The post-Sputnik years: How outer space captivated a generation," *New York Times*, September 25, 2007, accessed May 19, 2019,https://www.nytimes.com/2007/09/25/health/25iht-snpop.1.7630685.html.

[101] Ibid.

[102] Ibid.

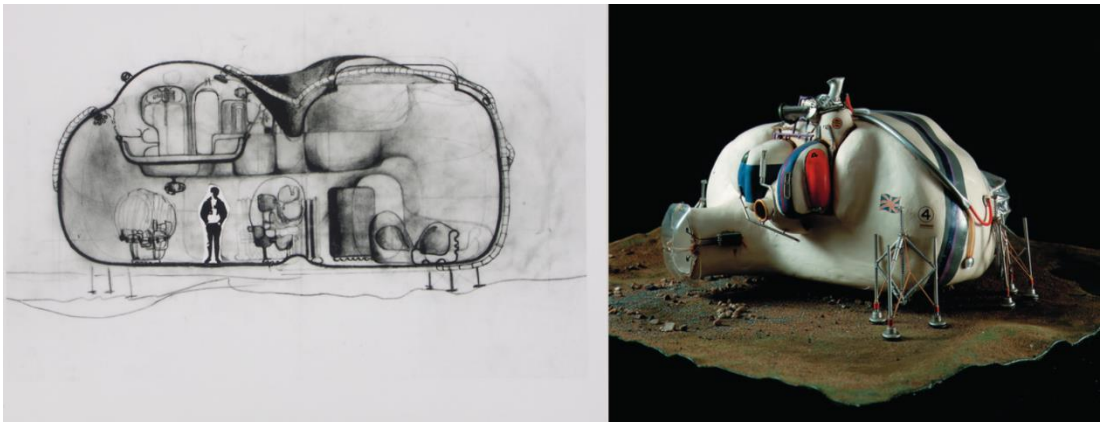

Figure 3.9. David Greene, "Living Pod" as a project under the influence of space age look, 1966.

Source: Archigram Archival Project. 2 Dec. 2018.

<http://archigram.westminster.ac.uk/project.php?id=82>

The space age look was often illustrated with organic and round forms which were enveloping a particular space, consequently many visionary architects and collectives like Archigram used bubble environments to depict their futuristic scenes. On the quest for a new aesthetic, these architects were motivated to use bubbles not only by their opposition to the conventional forms, but also by their desire to design visionary spaces responding the needs of changing daily life and culture driven by technological progress.

As it matched with their purpose, bubbles offered compact environments which all the functions are embedded inside its flexible envelope. These environments that were designed particularly for "inhabiting" served as "minimal living units" since they proposed certain activities like sleeping, eating or sitting with the aid of the technical equipments to provide necessary amenities and services to occupants. In this context, bubble environments could be regarded as the results of the emulations to space age in the 1960's architectural culture and thus the interpretations of the devices like the space capsules and pods designed for outer space.

As stated previously, technology stands out as a bearer of daily life in the rapidly changing culture of 1960's. As Colomina describes,

> "The world as it was known underwent drastic transformations on all scales – from the geopolitical landscape to the materials populating the new domestic environments – and utopian technological prophecies now manifested in a brave new world of computation, gadgets and spaceships."[103]

In parallel with the scientific developments, experiment was seen as an essential part of the technology to continue the progress into the future. Consequently, the concept of experiment which was affected by the spirit of the era led to a radical transformation in architectural culture too. Experiments that were held on form finding extended to a scientific approach, insomuch that Keller commented on Otto's researches on the soap bubbles: "the minimal surface was not designed, but discovered"[104] through a set of experiments and thus he described the results as the inventions of avant-garde architects.

In other words, architectural experimentation was expanded with involving new technologies not only from construction industry but also from various fields and it was promoted as an inevitable way for designing visionary architectural scenes and continuing the progress into future. Along similar lines, Cook mentioned about "the comprehension of inventions which are not architectural in origin"[105] leading to a central shift in architecture at the 1960's and indicated pneumatic structures of the French Utopie group as an example of "the architecture using parts and conglomerations that have not been used before."[106]

Especially in the project "Dyodon" designed as a final year work by Jungmann from Utopie in 1967, the transformation of architectural space through the inventions in pneumatic technology during 1960's could be observed. As described by its designer,

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[103] Colomina, Kotsioris, Galán and Meister, "The Radical Pedagogies Project."

[104] Keller, "The Politics of Form Finding," 111.

[105] Peter Cook, *Experimental Architecture* (New York: Universe Books, 1970), 65.

[106] Ibid.

the project was an experimental pneumatic habitation[107] as a complex dwelling project which was composed of smaller units such as private rooms, a kitchen, a bath, a library, a workspace, an observatory at the top, even a cold room and a solarium in different levels in accordance with the agglomeration of units.

Illustrating a futuristic scene with the space age aesthetic, "Dyodon" and other pneumatic projects of Utopie refer to a counter-culture architecture which is "technically interesting as well as formally new"[108] as Jungmann stated afterwards. Besides reflecting the avant-garde architects' emulations to the imagery of space age, this aesthetic could be regarded as a direct result of architectural experimentation that was fostered with the inventiveness of the era. In this context, experiments on pneumatic alternatives of living turned into a primary bearer of the formal searches to achieve their desire for a new aesthetic.

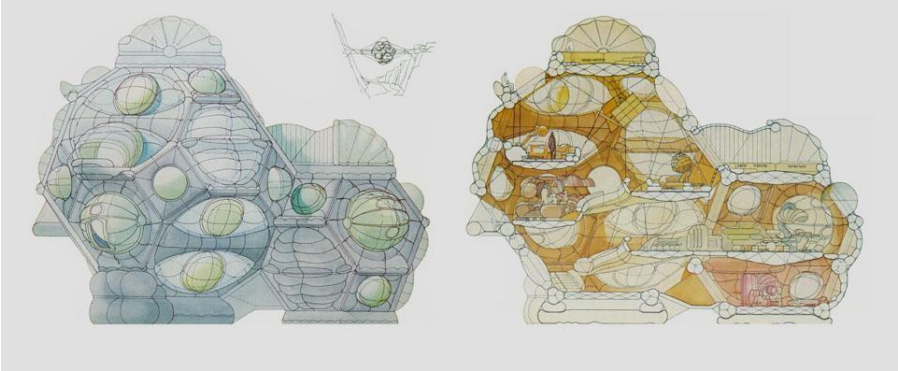

Figure 3.10. Jean Paul Jungmann, drawings for "Dyodon: An Experimental Pneumatic Habitation," 1967.

Source: Official Website of Domus. 22 Jan. 2019.

< https://www.domusweb.it/en/from-the-archive/2011/03/19/pneumatic-design.html>

[107] The original name of Jungmann's project was "Dyodon: Une Habitation Pneumatique Experimentale" and it was a part of "Architecture Pneumatiques" proposal of Utopie. Besides Dyodon, the proposal also involving the diploma projects of other two members of Utopie: Stinco's "Un hall Itinérant d'Exposition" and Aubert's "Un Podium Itinérant pour 5000 Spectateurs" was exhibited at ENSBA in July 1967. See, "Dyodon-Habitation pneumatique experimentale 1967 version 2," Jean Paul Jungmann, accessed January 21, 2019, http://www.jeanpauljungmann.fr/dyodon.html.

[108] Jungmann, "Statements," 67.

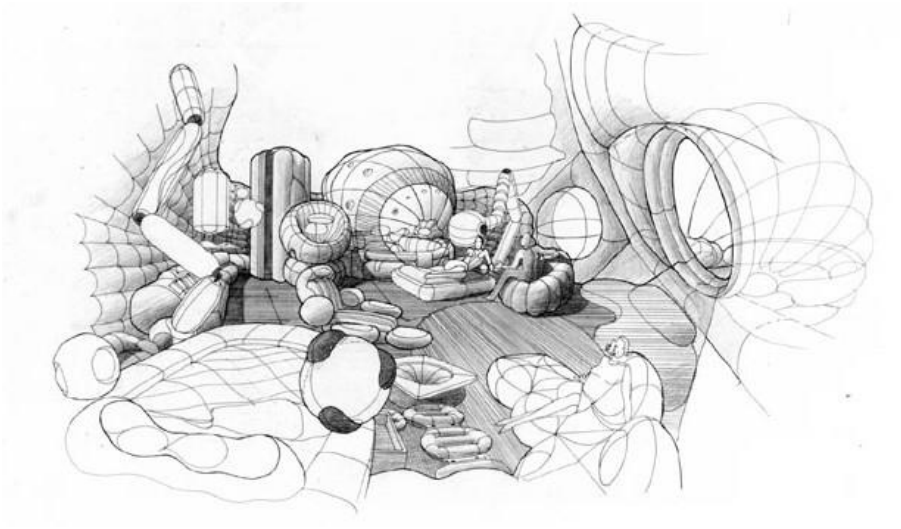

Figure 3.11. Jean Paul Jungmann, drawings for "Dyodon: An Experimental Pneumatic Habitation," 1967.

Source: Official Website of Jean-Paul Jungmann. 22 Jan. 2019.

<http://www.jeanpauljungmann.fr/dyodon.html>

Jungmann described the merit of their research as "certainly experimental, but controlled and within the possibilities of a technology."[109] Among the avant-garde works under the influence of space age look, inflatable technology in particular reflects the experimental nature of scientific developments and promoted as "a new way of envisioning architecture's relationship to both technology and culture."[110] In the new aesthetic that the avant-garde architects wanted to achieve, inflatable idea was materialized in the bubble form with the aid of "experiment" and used as a way to illustrate futuristic scenes by opposing to the formal conventionality. In this context, the necessities of experiment were fully realized in terms of not only including "the appearance of newness" but also "a strategy for future change" as Peter Cook stated in his seminal book "Experimental Architecture."[111]

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[109] Ibid.

[110] Moon, "Pneumatic Decoys," 363.

[111] Peter Cook, *Experimental Architecture,* 67.

3.3. Space - Material

3.3.1. From Hard to Soft Architecture

The term of "softness" used to define the changes in the architectural scenes through the uptrends of new design approaches formed by avant-garde tendencies since the beginning of 1960s. On the basis of an examination on the architectural publications of the late sixties and early seventies, Parnell claimed that the shift from hard to soft architecture become visible with the emerging out new themes in architectural culture.[112] Five main themes as categorized by Parnell were "cybernetics and information networks; the beginnings of the ecological movement; political protest; the space race and its technological spin-offs; control and choice and the right to individual happiness."[113] The introduction of these themes into architectural discourse led to the expansion of architecture to other related fields. As a consequence of this expansion, 1960s' architecture had gone through a transformation into a "softening."[114]

In broader sense, "soft" architecture as a term which was "expansive in its meaning"[115] referred to a shift in the avant-garde works of architecture. This shift could be illustrated in many respects: softening the boundaries of the elements of architecture, the profession and the role of architect; software's taking precedence over hardware; or the rise of soft-tech.[116] Besides that the term was used to express all these changes, it essentially carried the first meaning comes to mind: soft as a material characteristic.

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[112] Parnell, "Architectural design, 1954-1972," 293.

[113] Ibid.

[114] Ibid.

[115] Neeraj Bhatia, "Crazy-Radical Soft Architecture, From The 1950s To Today," *Architizer*, accessed January 27, 2019, https://architizer.com/blog/practice/tools/soft-architcture/.

[116] Parnell, "Architectural design, 1954-1972," 293.

Accordingly, Parnell assumed "material" as an aspect in the first place to discuss the contribution of emerging themes to softening of architecture and put particular stress on the shift from hard to soft material.[117] From the same point of view, Bhatia considered "material characteristics" as the most obvious associations with the term of "soft" and explained "soft" with these words: "yielding readily to touch or pressure; deficient in hardness; smooth; pliable, malleable, or plastic."[118] As Bhatia pointed out that softness was characterized by the new design approaches' being "skeptical of modernism."[119] Consequently, their skepticism led to the critique of modernism, in particular that of its hardness in material. Subjecting the hardness as one of the strict tenets of modernism, it was severely criticized for securing modernism's position and increasing its authority in architectural culture.

In his seminal book "Pneumatic Structures: A Handbook of Inflatable Architecture," Thomas Herzog, an early pioneer of innovative architectural research, stated that the critique of hardness was rooted in the opposition to the domination of "plane, mostly orthogonal forms with hard, cold, machine produced surfaces."[120] According to Herzog, hard surfaces of modernist architecture was achieved with the "increasing mechanization of the building process."[121] Domination of these materials such as concrete, steel and glass indicated "(modernism's) embrace of hard, "hygienic", strong, unyielding materials"[122] as one of the most visible motives of this strand.

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[117] Ibid.

[118] Bhatia, "Crazy-Radical Soft Architecture, From The 1950s To Today".

[119] Ibid.

[120] Thomas Herzog, *Pneumatic Structures: A Handbook of Inflatable Architecture* (New York: Oxford University Press, 1976), 7.

[121] Ibid.

[122] Clare Melhuish, "Concrete As The Conduit of Experience At The Brunswick, London," in *Material Matters: Architecture and Material Practice*, ed. Katie Lloyd Thomas (London; New York: Routledge, 2007), 205.

Consequently, the critique of hardness resulted in the appearance of some attempts within the frame of avant-garde paradigm. Such attempts were directed to criticize solidity of materials to challenge the authority of modernism and accompanied with the architectural experimentations with different materials and techniques. Among these architectural experimentations, as Kallipoti asserted, "structures referred to as 'organic', 'soft', 'pneumatics', 'sculpting' or 'spraying' are associated with soft material techniques."[123] According to her definition, the term "soft" differentiated from hard by "denoting a procedural, evolving logic of transfusion"[124] Referring to this definition, these techniques implied the plasticity of material and its relation with tectonics of architectural form.

Through the developments in pneumatic technology and its transfer into architecture, inflatable structures were mostly regarded as avant-garde architectural practices during the period of 1960s and 1970s. As a tool for generating alternative modes of architectural space, pneumatic technology not only contributed to enhance experimental architectural practices, but also supported for oppositional ideas to modernism's hardness by way of constituting a basis for "soft" architecture. By many avant-garde architects and collectives, modernism was accused of being hard and rigid in terms of both material qualities and tectonics of structure. On the other hand, inflatable practices of the avant-garde enabled to show a certain flexibility which was visible with the "softening" of architectural space. In this context, pneumatic technology had an important place in the opposition to modernism's hardness, indeed it was an antithesis for that; since hardness as a material characteristic was deemed to have a "negative connotation in the technical literature on pneumatics."[125]

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[123] Lydia Kallipoliti, "The Soft Cosmos of AD's 'Cosmorama' in the 1960s and 1970s," *Architectural Design* 80, no. 6 (2010): 38, https://doi.org/10.1002/ad.1160.

[124] Ibid.

[125] Steiner, "Bubbles," 168.

As mentioned previously, Parnell pointed out the shift from hard to soft in building materials as a result of the expansion of architecture, associated with the emergence of new themes in architectural culture. To exemplify this expansion, Parnell referred to the beginnings of the ecological movement as a new concern in architectural discourse. With his words:

> "…it is no longer considered to be formed of hard materials like bricks, concrete, glass, and steel, but is more integrated into its environment and ecological. Inflatables and softer materials, including "air walls", were literally considered as building materials."[126]

From Parnell's point of view, inflatable material was regarded as an innovative alternative to the hard, conventional materials. In this context, it served as a new building technique which connects physical space with the architectural discourse that was also shaping by the changes in counter-culture movements of avant-gardes. By bringing into new design approaches, it assisted the "softening" of architecture. Consequently, inflatable material in the form of pneumatic membranes was highlighted as a choice of material by means of the opposition to hardness, typically associated with modernism. In consideration of the relationship between pneumatics' transfer into architecture and the ideals of avant-garde paradigm, inflatable structures offered a new frame to think architectural space in a different way, and moreover, showed innovative ways for practicing it. Accordingly, pneumatic envelope expands from "a new physical technique to construct the architectural space" into "a way to realize avant-garde architects' ideals". Their ideals formed in accordance with the cultural shifts during the period of 1960s and 1970s and they were "materialized" through the soft surfaces of inflatable architecture. Or, to put it another way, avant-garde architects embodied their enthusiasm -for being critical to conventional- in their inflatable architecture practices through the soft surfaces that pneumatic technology enabled.

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[126] Parnell, "Architectural design, 1954-1972," 293.

3.3.2. Immateriality through Air

Architectural space is constituted from both material and immaterial elements, which means that it is characterized not only by the building fabric like glass, steel or concrete; but also by the sensory experiences that it provides like sound, smell, light or shadow. In a broad sense, immateriality is often associated with the perception of space in architectural thought. However, the term of "immaterial" is also used to describe the "absence" of matter rather than whose "presence." Referring to the antonym of "materialization," "immaterialization" is regarded as the condition of being disappearing or vanishing in terms of the material perception. Accordingly, Hill explained the immaterial architecture that he proposed as "less the absence of matter than the perceived absence of matter."[127] To make it clear, such architecture's immateriality was dependent upon the user's perception; one can define an architecture as immaterial if the perceived absence of matter is more than the actual one.[128]

The common perception of avant-garde architects was that the material characteristics related with modern architecture such as solid, heavy or hard assure modernism' authority, by forming a strict materiality. In this context, avant-garde architects directed their criticism at the materiality of modernism. This criticism of avant-gardes resulted in a search for a new mode of materiality, which must be covered a liquid, light or soft material characteristics, based on oppositions to what was seen as dominant in modernism's materiality. To overcome strict materiality of modernism, resulting from the hardness of material, "immateriality" was searched through varying experiments in counter-culture architecture and thus promoted as a new design approach for generating the alternative modes of materiality for architectural spaces.

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[127] Jonathan Hill, "Excerpts From Immaterial Architecture," in *Introducing Architectural Theory: Debating a Discipline*, ed. Korydon Smith (London; New York: Routledge, 2012), 133.

[128] Ibid.

Among these experiments toward generating alternatives to traditional modes of materiality, inflatable structures were significantly differentiated by using "air as a building material." In their contribution to achieve an immateriality in architectural space, air and softness that it represents challenged unorthodox materials strict hardness that they promoted. As Moon pointed out, "blurring the line between air and building,..they (inflatables) demonstrate that architecture can be soft and temporary, and even as immaterial as air."[129]

In a similar manner, Corbo attributed air' being a building material to the emergence of a new materiality through a search on the alternatives of modernist space. In his words:

> "A new idea of materiality has emerged, far from the apology of transparency declined by Modern Architecture; architecture is now diluted, liquid, like the relationships it pretends to build. Consequently, air becomes a real material of construction. If in the past it was used and manipulated to offer comfort and wellness in human habitats (as a technical performative tool), now it expresses a double condition, an immaterial, but at the same time, concrete space. So, passing through the hygienist rhetoric of Modernity, air has become a formal composite material."[130]

The power of the idea of using air -to achieve immaterial space and, by this means, to oppose strict materiality- lay in its simplicity. According to Hale, co-curator of the exhibition: The New Inflatable Moment,[131] inflatables are simple structures

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[129] Moon, "Pneumatic Decoys," 362.

[130] Stefano Corbo, "Cloud-ness," in *Interior Landscapes: a Visual Atlas* (Mulgrave, Victoria: The Images Publishing Group Pty Ltd, 2016), 66-67.

[131] As an exhibition inspired by the 1998 exhibition and book: The Inflatable Moment: Pneumatics and Protest in '68 by Marc Dessauce and The Architectural League of New York, the exhibition: "The New Inflatable Moment" focuses on inflatable architecture of past and present. The exhibition curated by Mary E. Hale and Katarzyna Balug included a series of installations, photographs, videos, and models. It was held at Boston Society of Architects(BSA) Space from May 2017 to September 2017. For further information, see, https://www.architects.org/bsaspace/exhibitions/new-inflatable-moment.

representing "a complete subversion of modernism."[132] As cited by Budds, Hale expressed that the fascination with inflatables stemmed from its simplicity in the opposition to modernism's values:

> "Modern architecture is regimented and regular; it's right-angles heaviness. Here you're in a bubble, these translucent environments where there's no structure. It's a membrane held aloft by a fan. It's so simple and subverts everything about modernism."[133]

As a simple structure, an inflatable was basically composed of two components: the plastic membrane and air. Pneumatics as a new physical technique introduced into architectural scenes with the developments in plastic technology, offered envelopes which shapes with the air pumped inside the membrane. In this context, both components served as innovative tools for pushing the limits of material characteristics of space and by doing so they provide the basis for a new framework for the practices of immaterial architecture.

First, inflatables took the advantage of "transparency" for providing space with a barely-there form so that the medium of air can be visible.[134] When the air was pumped inside the envelope, plastic membrane performed like a mold. Through the trapped air, the envelope transformed into its final shape, like in a way pouring concrete into the timber formwork. Yet, the final shape of inflatables was not concluded with a rigid behavior unlike that of the concrete structures. On the contrary, inflatable structure provided flexibility in form due to the plastic membranes' soft and malleable material characteristics that allow for changes on the envelope's surface.

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[132] Diana Budds, "Today's Architects Are Obsessed With Inflatable Design–Here's Why," Fast Company, February 5, 2017, accessed February 5, 2019,https://www.fastcompany.com/ 90112343/todays-architects-are-obsessed-with-inflatable-designheres-why.

[133] Ibid.

[134] Moon, "Pneumatic Decoys," 362.

Second, inflatable structures differ from conventional structures by keep standing without the "need for any rigid infrastructure of columns or beams"[135] This freedom could be explained by the behavior that inflatable structure offered, as a bubble. According to Steiner, the behavior of the air-supported envelope resulted from an idiosyncratic combination of "the intrinsic strength of materials used in tension and the structural efficiency of the shell, with no concern for bending or buckling"[136] This combination referred to the totality of bubble structures, and it provided for that structural elements and material in inflatables work in cooperation, as a whole. By this means, the distinction between what was structural or material disappeared. And consequently, inflatables turned into a new possibility in constructing immaterial architecture that was freed from the limitations of materiality with the aid of removing conventional infrastructure.

In this new mode of materiality which its progress was fostered with the explorations into material technology, inflatable structures were at the foreground in counter-culture experiments in architectural discourse of that time. In accordance with their role in promoting immaterial experiences in architecture, they pioneered the idea of transience in architectural spaces. As discussed above, this feeling of transience was rooted in inflatables' material characteristics since the perceived absence of matter was more than the actual absence of that.

Among the projects produced within the frame of the new mode of materiality which pneumatic technology promoted, Ant Farm's "Clean Air Pod" could be interpreted as one of the most significant examples using air as a building material. Indeed, Ant Farm took this avant-garde idea -using air as a building material- much further by building a fictional scenario that the only clean air in the world was in the inflatable bubble, called as "Clean Air Pod," alias "CAP1500."

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[135] Steiner, "Bubbles," 157.

[136] Ibid.

According to their narrative, the members of Ant Farm wore gas masks, protective gear, and white laboratory suits and called on visitors to enter "Clean Air Pod" to survive air pollution outside.[137] The performance "Breathing – That's your Bag" which was staged on the University of California at Berkeley campus in 1970 signified a criticality on social issues of architecture. As Moon stated that the group effectively used the inflatable as "a performative decoy."[138] In this sense, "the immateriality of air had become the new medium for radical thinking and making."[139]

Figure 3.12. Ant Farm, "Clean Air Pod" project from the performance "Breathing – That's your Bag," 1970.

Source: Spatial Agency. 6 Feb. 2019.

<http://www.spatialagency.net/database/ant.farm>

[137] Lydia Kallipoliti, "The Envirobubble: Clean Air Pods Redux," in *101st Proceedings-New Constellations New Ecologies,* Proceedings of the 101st Annual Meeting of the ACSA, eds. Ila Berman and Edward Mitchell (Washington, D.C.: ACSA Press, 2013), 305.

[138] Moon uses the word "decoy" to express the criticality that inflatables brought into architectural culture. She points out that pneumatics not only employs "aesthetic allure and sensorial seduction to subvert preconceived notions of what constituted architectural form, space, and experience" but also they can "operate as mechanisms for launching social, political, and environmental critique." See, Moon, "Pneumatic Decoys," 365.

[139] Ibid.

As illustrated in the example, inflatable structures offered an opposition to the materiality through their composition and related material characteristics. In accordance with their composition, "their thin transparent membranes, given volume only by air itself, produced a near immaterial essence."[140] During this period, material choices of counter-culture architects were shaped not only for creating an aesthetic allure through the material or for erecting the building in the most proper way, but also, and most importantly, for being critical to main-stream architecture. In such a way that fits the ideals of counterculture architects, inflatables regarded as rhetoric practices through their immateriality.

In this context, there was an increasing interest in inflatables within the frame of avant-garde paradigm. Referring to their soft materiality, inflatables was also called as "air-made architecture"[141] and turned into the subjects of fascination for immaterial architecture. This fascination among the practitioners of inflatables was expressed in the seminal text of Hans-Walter Müller, "Why Inflatables?," with following words: "they(inflatables) are extraordinary and magical."[142]These compliments used for inflatables referred to the shift in architectural discourse formed with the oppositions to conventional. As similarly Dessauce illustrated the shift in materiality with his comment to the famous quote from Marx: "all that was solid, from furniture to bathrooms, 'had melted into air.'"[143]

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[140] Douglas Spencer, "The Alien Comes Home: Getting Past the Twin Planets of Possession and Austerity in Le Guin's *The Dispossessed*," in *The New Utopian Politics of Ursula K. Le Guin's The Dispossessed*, eds. Laurence Davis and Peter Stillman (Lanham; Oxford: Lexington Books, 2005), 103.

[141] Hans-Walter Müller, "Why Inflatables?," in *Hans-Walter Müller's Three Inflatable Modules*, ed. and trans. Public Commission for the "Centre international d'art et du paysage of Vassivière Island," http://www.ciapiledevassiviere.com/documents/dossier_pedagogiqueHWM.pdf, accessed on February 7, 2019. Under the title of "Pourquoi les Gonflables?," the article was originally published in French magazine: *Techniques et architectures*, no. 305 (May/ June 1975), 73-74.

[142] Ibid.

[143] Marc Dessauce, "Paris Biennal, 1967," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 75.

3.4. Space - User

3.4.1. Inflatables as Performative Structures

From 1960s, the transformation of the relation between "space and user" achieved a significant breakthrough in architectural thinking. In the works of radical-avant-garde architects, the transition of user from a passive position to an active one was visible in terms of the interaction of user with the built environment. As Corbo commented that "the focus of any design process is shifted from the architect to user, who begins to model and adapt their own habitat in an active and responsible way."[144] And he continued as follows:

> ".. a new machine has been produced. Not an industrial machine, as propagandized by Modern Movement, instead, a sensorial machine, able to produce, alter and stimulate perception."[145]

In this context, like other relationships of space previously mentioned before, this questioning of user's position in architectural design practices can be explained by an opposition to modernism's values. This opposition in the scope of the relation between space and user appeared as the responsiveness in the inflatable works of avant-garde architects. Unlike the relationship between the space and user that resulted from conventional techniques of building structures, as Banham illustrated with these words: "the static shell of a traditional building where you can beat your fists on the walls and scream and get no more than an echo for a response,"[146] inflatables provided users an interactive experience due to their soft behaviors. The responsiveness brought out by inflatables' softness, resulting from the formal and material characteristics. As in Banham's words:

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[144] Corbo, "Cloud-ness," 67.

[145] Ibid.

[146] Banham, "Monumental Windbags," 33.

> "The beauty of that simple wind-bag was the directness and continuity of its response. Every slight change of state inside or out—even a heated conversation—brought compensating movement in the skin, not through the expensive intervention of a computer, but by direct variation of curvature under balance of pressures."[147]

Inflatables, or which Banham defined as "simple wind-bags," referred to responsive structures to human behavior. From his point of view, inflatables involved "the kind of direct-participation, real-space, real-time involvement-aesthetic—epitomized in events like light-sound happenings—"[148] due to its responsive nature. Accordingly, what Moon deduced from Banham's words was that the inflatable structure referred to "a new model for disciplinary and material invention, rendering architecture less like an object, and more like a happening."[149] In this context, the responsiveness of inflatables contributed to replacing the position of user previously assumed by the discipline with an alternative one that embedded user into architectural space as a participant.

Through this new positioning of user, the inflatable structure transformed into "a performance" which allowed user to participate, by this means it generates a sensorial experience that was shaping according to perception of the user. Besides that, "their ability to perform—both technically and culturally—affords the inflatable unique versatility as a disciplinary model for architectural experimentation."[150] In that sense, pneumatics could be regarded as a medium for avant-garde architects "to directly express the relationship between society, technology, and environment."[151]

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[147] Ibid.

[148] Ibid.

[149] Moon, "Environmental Wind-Baggery,"

[150] Moon, "Pneumatic Decoys," 362.

[151] Moon, "Environmental Wind-Baggery,"

Accordingly, inflatable practices of avant-garde aimed to enhance the boundaries of physical environment by generating atmospheric spaces. These environments were designed in a way that alters the perception of space through the senses when the user entered into the envelope. As one of the projects highlighting the atmospheric experience enabled by inflatables, "Yellow Heart"[152] was designed by Haus-Rucker-Co in 1968. As a weekend house for two people, it was comprised of the inflatable bubbles made from PVC membranes and a metal supporting frame. To create an sensorial atmosphere, the project was supported by the multisensory devices such as "headpieces giving out jumbled sounds, and changeable coloured glasses."[153]

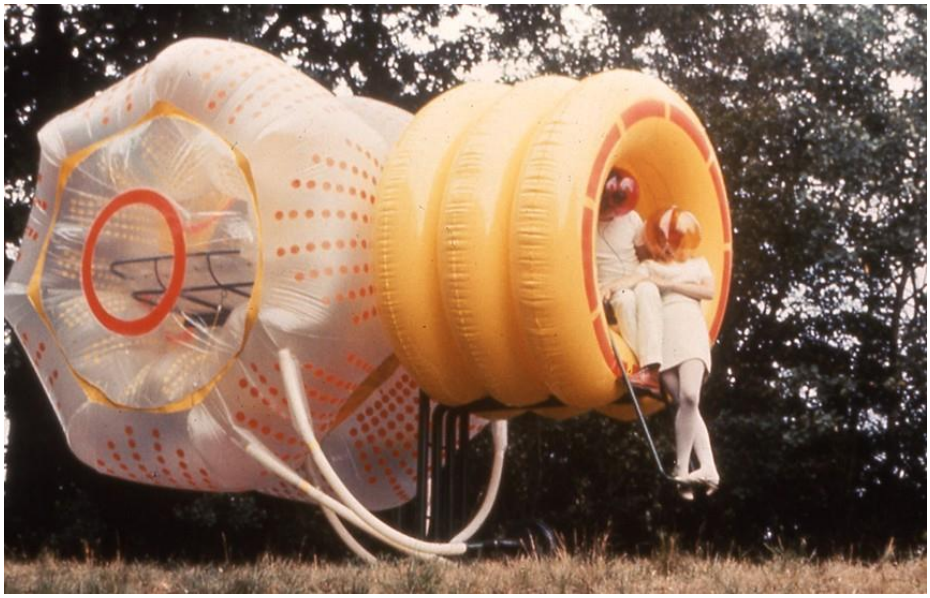

Figure 3.13. Haus-Rucker-Co, "Yellow Heart," Vienna, 1968.

Source: Official Website of Ortner & Ortner Baukunst. 11 Feb. 2019.

< https://www.ortner-ortner.com/en/haus-rucker-co>

[152] As a work in the exhibition "PLASTIC as Plastic" held between November 1968-January 1969, "Yellow Heart," in original name "Gelbes Herz" was displayed at the Museum of Contemporary Crafts of the American Craftsmen's Council, today known as the Museum of Arts and Design. For further information, see, *PLASTIC as Plastic*, edited by Paul J. Smith & Sandra R. Zimmerman & Mimi Shorr (New York: the Museum of Contemporary Crafts, 1968). Exhibition catalogue, accessed February 9, 2019, https://digital.craftcouncil.org/digital/collection/p15785coll6/id/2715/rec/4

[153] Quarmby, *Plastics and Architecture,* 150.

According to the members of group, the project was engaged in the idea of that "a concentrated experience of space could offer a direct approach to changes in consciousness."[154] In that manner, Haus-Rucker-Co intended to "provide unique and participatory sensorial experiences"[155] and by doing so, the user as a subject who influences his/her own environment could became active. Allowing the user to participate in, inflatables converged to the "performances." Consequently, they considered as significant attempts not only for constructing spaces, but also for exhibiting them by inviting users to experience.

"Yellow Heart" as a project oriented toward sensorial experience was depicted by the founders of Haus-Rucker-Co as follows:

> "Through a lock made of three air rings, one arrived at a transparent plastic mattress. Offering just enough space for two people, it projected into the centre of a spherical space that was made up of soft, air-filled chambers. Lying there one could perceive that the air-filled "pillows," whose swelling sides almost touched one, slowly withdrew, that is to say the surrounding space appeared to expand, finally forming a translucent sphere and then, in a reverse motion, flowed out again. Large dots arranged in a grid on the outer and inner surfaces of the air-shells changed in rhythmic waves from milky patches to a clear pattern. The space pulsated at extended intervals."[156]

In the inflatable practices of Haus-Rucker-Co, architectural spaces referred to the performances which should be perceived through their sensory characteristics. Among the avant-garde groups experimented with pneumatic structures during that era, Coop

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[154] "Gelbes Herz, Wien 1968," Ortner & Ortner Baukunst, accessed February 11, 2019, https://www.ortner-ortner.com/en/haus-rucker-co.

[155] Jessica Shaykett, "Haus-Rucker-Co.'s Yellow Heart for Two," *American Craft Council*, February 14, 2013, accessed February 11, 2019, https://craftcouncil.org/post/haus-rucker-cos-yellow-heart-two.

[156] Ortner & Ortner Baukunst, "Gelbes Herz, Wien 1968."

Himmelb(l)au adopted a similar approach which "led them to explore the relationships between the architectural environment and our individual perceptions of it."[157]

In this direction, the group's performative works were aimed at connecting the users with their physical environment through the stimulation of the senses, arising from the responsive nature of inflatables. As stated in the book "Spatial Agency: Other Ways of Doing Architecture," early works of Coop Himmelb(l)au can be categorized as "performative installations and actions involving the spectators as participants"[158] and thus these works were characterized by their strong will to include the users in these performative installations, in accordance with the plastic envelope that environs them.

As one of these performative projects of Coop Himmelb(l)au, "Villa Rosa" was a significant example in terms of generating sensorial experiences since it was featured with color, sound and fragrance to stimulate the senses of user. Designed as a pneumatic dwelling unit, the project was comprised of eight inflatable bubbles whose volumes were varied from minimum to maximum and these bubbles were held up by steel structural elements.[159] Like the "Yellow Heart" project of Haus-Rucker-Co, this project was also supported with a heart-beat rhythm. Moreover, the projections of different colors and sounds were provided by inserting an audiovisual program into the project and they were accompanied with appropriate fragrances blown in through the ventilation system.[160] In this context, multisensory attachments help the user expand their spatial awareness in such a way to enhance the user's capability to experience the space.

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[157] Nishat Awan, Tatjana Schneider and Jeremy Till, *Spatial Agency: Other Ways of Doing Architecture* (London: Routledge, 2011), 130.

[158] Ibid.

[159] "Villa Rosa," COOP HIMMELB(L)AU, accessed February 13, 2019, http://www.coop-himmelblau.at/architecture/projects/villa-rosa/.

[160] Ibid.

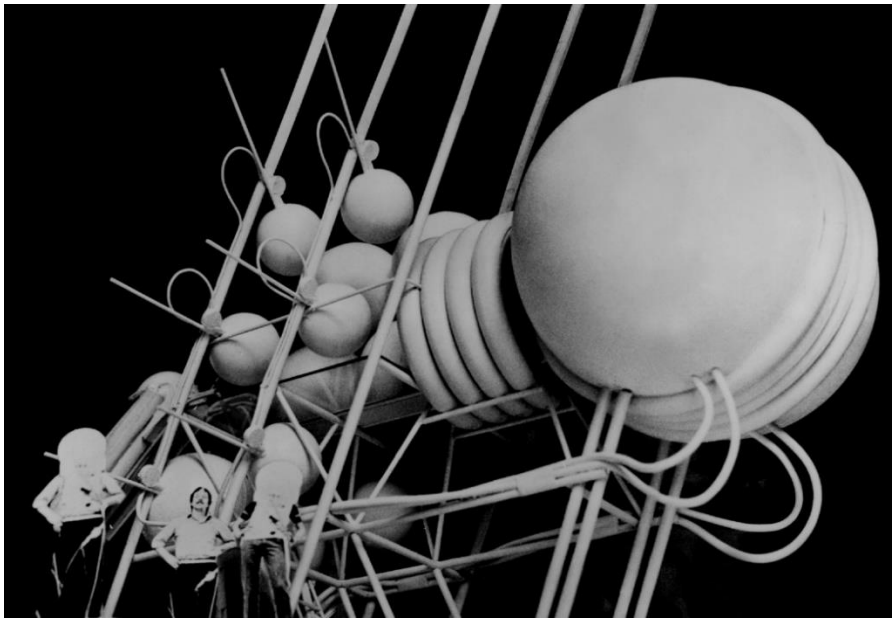

Figure 3.14. A photograph showing the members of Coop Himmelb(l)au with their project "Villa Rosa," Vienna, 1968.

Source: Official Website of Coop Himmelb(l)au. 13 Feb. 2019.

<http://www.coop-himmelblau.at/architecture/projects/villa-rosa/>

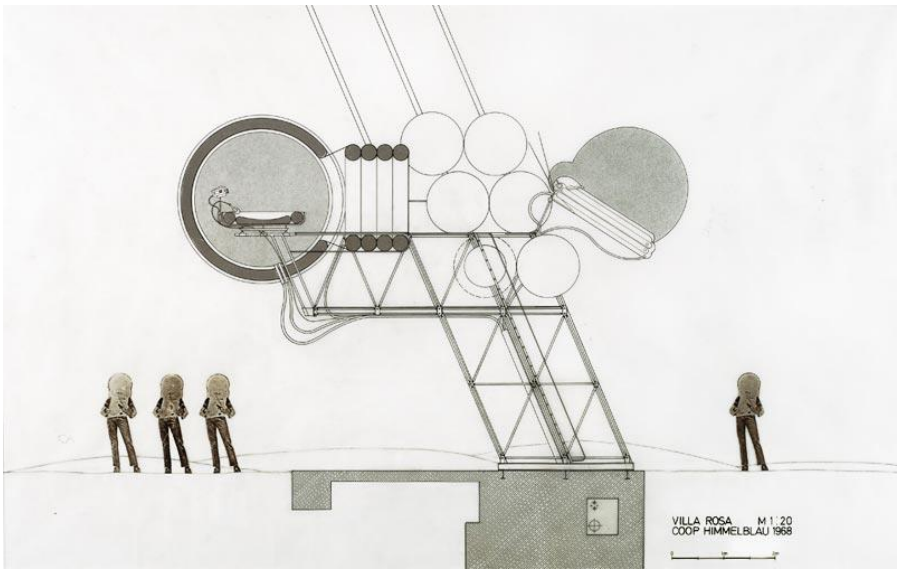

Figure 3.15. Coop Himmelb(l)au, 1/20 section drawing for the "Villa Rosa," 1968.

Source: Official Website of Frac Centre-Val de Loire. 13 Feb. 2019.

<http://www.frac-centre.fr/_en/art-and-architecture-collection/rub/villa-rosa-317.html?authID=46&ensembleID=119>

The inflatable bubbles filled with smells in "Villa Rosa" were vibrating and inflating "to continuously alter the inhabitants reading of themselves in relation to their surroundings."[161] With their ability to perform, perception of inflatable structures of avant-garde was dependent to the human behavior. As Hejduk stated that language of avant-gardes was combined with "the ideas that equate a new architectural form with psychological and behavioral freedom."[162] In this sense, these works were considered as atmospheric practices in the avant-garde paradigm since they had the they were highlighted with the sensory characteristics of space and the users' consciousness to their environment. As quoted by Coop Himmelb(l)au defined their architecture as follows:

> "Our architecture does not have a physical ground plan, but a psychological one. There are no more walls. Our rooms are pulsating balloons. Our heartbeat becomes space, our face is the façade of a house."[163]

In these performative works of avant-garde, the freedom of user enabled by inflatables was fused with the "notion of play" which was often invoked in the projects' programmatic descriptions.[164] Within the avant-garde paradigm, the new positioning of user was enhanced with the introduction of "play" and thus architecture was started to be seen as a fun activity, departing from the idea that architecture as a serious discipline. In Inflatocookbook, Ant Farm referred this new role of user by commenting

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[161] AJ Artemel, "Retrospective: The Incredible Inflatable Architecture Of The 1960s," *Architizer*, accessed February 14, 2019, https://architizer.com/blog/inspiration/collections/retrospective-the-incredible-inflatable-architecture-of-the-1960s/.

[162] Hejduk, "Beyond Architecture," 232.

[163] "Our Architecture Has no Physical Ground Plan," COOP HIMMELB(L)AU, accessed February 14, 2019, http://www.coop-himmelblau.at/architecture/philosophy/our-architecture-has-no-physical-ground-plan/.

[164] In the endnotes of the article: Beyond Architecture: Technology, Freedom, and Play," Hejduk explained that ""play" is used in the Marxist or Situationist sense of: to live and produce one's life deliberately, artistically, and playfully-the notion of freedom is inherent with this usage." For further information, see, Hejduk, "Beyond Architecture," 227.

that "the new dimensional space becomes more or less whatever people decide it is"[165] and continued as follows: "A conference, party, wedding, meeting, regular Saturday afternoon becomes a festival."[166]

In a similar way, Chalk as a member of Archigram, pointed out the relationship between the notion of play and human liberation in architectural spaces. He defined what they were after in their experiments as "technological play, so that individuals can create an even greater environmental stimulation."[167] With the involvement of technology in architectural scenes, the notion of play was regarded as a tool for providing the participation of users freed from conventional limitations. According to Chalk, what these experiments achieved was "a people-oriented technology of human liberation, directed towards pleasure, enjoyment, experimentation."[168]

Among these inflatable performative projects, Coop Himmelb(l)au's "Restless Sphere" was a significant example that combined pneumatic technology with the notion of play. The performance was defined by the group itself as "a demonstration showing the possibilities of pneumatic construction."[169] In this context, it signified the major role of pneumatic technology in generating avant-garde practices during that period. The performance included a sphere which was four meters in diameter and the people walking within this sphere so that the sphere could move.[170]

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[165] Ant Farm, *Inflatocookbook,* 3.

[166] Ibid.

[167] Warren Chalk, "Touch Not." Reprinted in *A Guide to Archigram 1961-74,* ed. Dennis Crompton (London: Academy Editions; Berlin: Ernst & Sohn, 1994), 359. The article was first published in Architectural Design (April, 1971).

[168] Ibid.

[169] "Restless Sphere," COOP HIMMELB(L)AU, accessed February 16, 2019, http://www.coop-himmelblau.at/architecture/projects/restless-sphere/.

[170] Ibid.

Figure 3.16. A photograph from Coop Himmelb(l)au's performance: "Restless Sphere," Basel, 1971.

Source: Official Website of Coop Himmelb(l)au. 16 Feb. 2019.

<http://www.coop-himmelblau.at/architecture/projects/restless-sphere>

Rolling the translucent sphere in Basel streets, "Restless Sphere" was a public performance with the active involvement of users. By allowing the encounters in public space, it made the sphere open to communicate with the participants who were both inside and outside the envelope. According to Wright, the performance could be described as "a 'transparent habitat' and also a 'means of transport'"[171] In that context, it also manifested avant-gardes' desire for mobility, as mentioned previously. However, this mobility in "Restless Sphere" was achieved by means of the bodily act of users. During the performance, the users were closely involved with the decisions on the animation of the sphere, indeed its movement was dependent to that of the users. Through this visible connection between the user and the sphere, the users could play an active role in the generation of architectural space and experience.

[171] Wolf Prix, "Functional Sculpture: Coop Himmelb(l)au's European Central Bank in Frankfurt," interviewed by Herbert Wright, *Design Curial*, April 6, 2015, accessed February 17, 2019, http://www.designcurial.com/news/functional-sculpture-coop-himmelblaus-european-central-bank-in-frankfurt-4547055/.

As it was manifested in "Restless Sphere" project, pneumatic technology was an opportunity for liberating the human behavior in architectural space. At this point, why pneumatics differed from other tools and techniques operated by avant-garde architects could be explained by their ability to perform. To sum up, this ability was rooted in two concepts embodied in the inflatables: "the responsiveness" that enabled the users to influence their own environment and, at the same time, to be influenced by their environments; and "the notion of play" that integrated the users into the architectural space through their experience. With their ability to perform, inflatables put the users in the center and inevitably turned them "from the spectator into the participant."

3.4.2. Bodily Extensions of Architecture

As a result of the new relationship between the space and user, human liberation in architectural space was regarded as a dominant theme in the avant-garde scenes in the late 1960s and early 1970s. As Hollein stated in his seminal text "Everything is Architecture," a new freedom that could be sensed in this period was explained by the new positioning of the user, as described in his words: "Man will now finally be the center of the creation of an individual environment."[172]

This new positioning referred to a transformation of user's role in architectural space. According to Buckley, "the absent subject returns as an individual with the capacity to determine his or her own environment, a psychically charged space."[173] In this context, new approaches in architecture arose from the necessity of meeting changing needs of users with regard to the enhancement of sensorial experiences in architecture. In these new approaches which strived for relating the architectural space to user, the efforts of avant-garde were directed at human body and they took architectural space in an anthropocentric way.

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[172] Hollein, "Everything is Architecture," 462.

[173] Buckley, "From Absolute to Everything," 113.

Through establishing an anthropocentric framework for architecture, human environment was expanded by "approaching the contours of the subject"[174] and thus the searches of avant-garde architects resulted in the generation of bodily extensions of architecture. In these searches, the technological developments introduced into architectural scenes played an important role. As Wihart points out that "the inextricable entanglement of technology and architecture"[175] led to the emergence of such experiments challenging the relationship between the human and architectural spaces. Consequently, these experiments dealt with "more tangible and physically reciprocating notions of exchange between the human body and its artificial architectural extensions"[176] and contributed to spread the visionary architects' practices in this direction.

Teyssot described these practices as "improved, prosthetic bodies, technological organisms"[177] and exemplified them by some projects of the group Haus-Rucker-Co which prosthetic tendencies were clear: "Pneumacosm (1967) and Gelbes Herz (1968), as well as their multisensorial helmets, Mind Expander (1967), Fly Head (1968), and Mind Expander II (1968–1969)"[178] As spatial extensions of human body, all these projects referred to an understanding towards enhancing the users' sensorial experience. In this context, they could be regarded as architectural interpretations of human body and its constituents in such a way that strengthens the relationships between them. Using this relationship in favor of the liberation of human sensation, these projects were served as the "prosthetic expansions of human body".

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[174] Buckley, "From Absolute to Everything," 113.

[175] Michael Wihart, "The Architecture of Soft Machines," (Ph.D., University College London, 2015), 224, http://discovery.ucl.ac.uk/1469447/4/Wihart_Michael%20Wihart%20thesis_redacted.pdf

[176] Ibid.

[177] Georges Teyssot, *A Topology of Everyday Constellations* (Cambridge, Massachusetts: The MIT Press, 2013), 213.

[178] Ibid, 238.

Figure 3.17. Haus-Rucker-Co, "Mind Expander," Vienna, 1967.

Source: Dataisnature. 23 Feb. 2019.

<https://www.dataisnature.com/?p=1522>

In his description of "prostheses," Teyssot was highly influenced by renown media theorist Marshall McLuhan's book "Understanding Media: The Extensions of Man" published in 1964. Briefly, McLuhan's philosophy man" was based on the idea of "media as the extensions of man" and he used the term "medium" to refer all tools or techniques formed with new technologies.[179] According to his approach, any new technology impacted human beings in a way that extends their bodies and he rendered his argument by calling some technological devices as extensions, such as car, telephone, radio or TV with regard to their role in the expansion of contours of human body and mind. In this context, technology was not only a primary bearer in the extension of human body as physically, but also it enabled to enhance the sensorial experience of human as psychologically. McLuhan explains the relation between the technological developments and extensions of man by these words:

[179] Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), 7.

> "During the mechanical ages we had extended our bodies in space. Today, after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned. Rapidly, we approach the final phase of the extensions of man - the technological simulation of consciousness.."[180]

In the McLuhanist view of Teyssot, pneumatics technology was invoked as a new technology with regard to its ability to extend human body, as it was clear in the examples of prosthetic extensions that Teyssot gave. During this period of time, "the control of the environment as an extension and in relation to human body"[181] constituted the core of the idea that pneumatics as one of these new technologies bringing new formal alternatives to conventional architecture. [182] In accordance with the responsive nature of pneumatic technology, which highlighted in the seminal text of architectural critic Reyner Banham: "Everything is Architecture" and recalled in this chapter many times, inflatables brought human body into very close proximity with architectural space.

Referring to Banham, Velikov, Thün, O'Malley and Simbuerger explained this proximity by that "physical responses to and of pneumatic structures are visceral, intimate, and sympathetic to human body."[183] Human behavior was embedded into the design of architectural spaces as a significant parameter since it was "one element among the others that supplied feedback to the overall pneumatic system."[184] In this

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[180] Ibid, 3.

[181] Eva Branscome, *Hans Hollein and Postmodernism: Art and Architecture in Austria, 1958-1985* (New York: Routledge, 2017), 168.

[182] Ibid.

[183] Kathy Velikov, Geoffrey Thün, Mary O'Malley, and Wiltrud Simbuerger, "Nervous Ether: Soft Aggregates, Interactive Skins," *Leonardo SIGGRAPH 2014 Art Papers and Acting in Translation Art Gallery* 47, no. 4 (August, 2014): 346, https://doi.org/10.1145/2601080.2677711.

[184] Steiner, *Beyond Archigram*, 162.

context, pneumatic technology could be easily adapted to the human body and integrated into its bodily appendages in which it was possible to create atmospheric environments and thus have an intensifier effect on the perception of space through an isolation from surroundings.

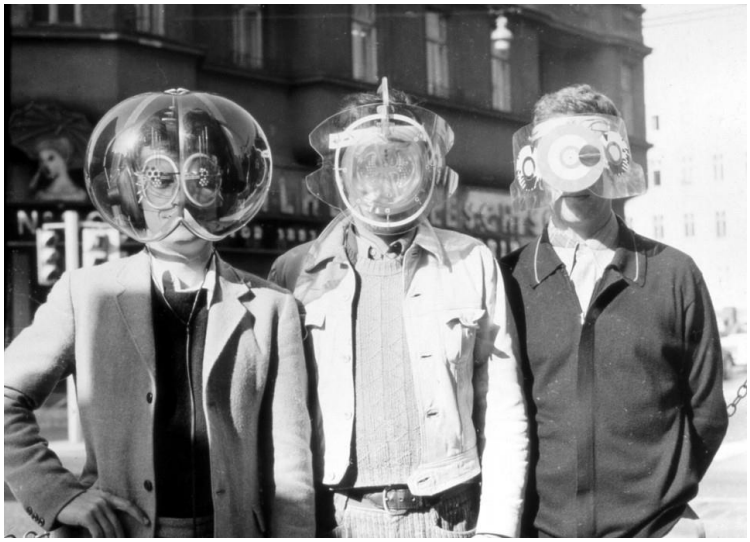

Figure 3.18. A photograph showing the members of Haus-Rucker-Co: Laurids Ortner, Günther Zamp Kelp and Klaus Pinter with their environment transformers (Flyhead, Viewatomizer and Drizzler), 1968

Source: Spatial Agency. 22 Feb. 2019.

<http://www.spatialagency.net/database/haus-rucker-co>

The projects from the "Mind Expander" series of Haus-Rucker-Co were such obvious examples for the bodily extensions of architecture. The environment transformer projects of the group, as seen in the figure above, were formed as different versions of prosthetic helmets which aimed at changing how the users perceive the space. In this way, they were differentiated in accordance with their design decisions. To exemplify, the version of "Flyhead" designed in a way that "disoriented the sight and hearing of the wearer"[185] so that it could propose "an entirely new apprehension of reality."[186]

[185] Awan, Schneider and Till, *Spatial Agency*, 156.

[186] Ibid.

Haus-Rucker-Co defined their environment transformers as "appliances that change sensory impressions for a limited time in a visual and acoustic way."[187] In accordance with the group's intention, this change led to a transformation on the user's spatial experiences. As the group stated, it was occurred by detaching the senses of seeing and hearing that the user operated on impulse from their habitual insensibility and reform them in order to generate a unique experience.[188]

In this context, the prosthetic devices offered atmospheric environments "to enhance the sensory experience and highlight the taken-for-granted nature of our senses."[189] Through an approach which was aimed at increasing the spatial awareness of user, this multisensorial experience could be regarded as a tool to display the explicit ambition of radical avant-garde architects to transform architectural space by including the senses of human. According to Popeson from MoMA's Department of Architecture and Design, it should not so much matter whether such a transformation of architectural space could be achieved by "Flyhead Helmet" of Haus-Rucker-Co.[190] Yet, she pointed out these prosthetic devices' contribution to the perception of space and claimed that "what matters is that it seeks to open the door to altered and expanded perception."[191]

Through the fusion of architectural space and technology offered by pneumatic ideas, the presence of human was embodied in these environments based on bodily

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[187] "Environment Transformer, 1968," Ortner & Ortner Baukunst, accessed February 28, 2019, https://www.ortner-ortner.com/en/haus-rucker-co.

[188] Ibid.

[189] Awan, Schneider and Till, *Spatial Agency*, 156.

[190] Pamela Popeson, "The Mind Expander/Flyhead Helmet: A Mind-Blowing Perception Transformer," *Inside/Out: A MoMA/MoMA PS1 Blog*, March 31, 2011, accessed May 19, 2019, https://www.moma.org/explore/inside_out/2011/03/31/the-mind-expanderflyhead-helmet-a-mind-blowing-perception-transformer/.

[191] Ibid.

experiences of user in a way that prioritize the position of user in architectural culture during this period. Chalk, one of the members of Archigram, evaluated that the shift as a result of the technological implications in architecture and their influence from Mcluhan's writings in the following words:

> ".. architects as presently known will cease to exist, and a very different kind of animal will emerge, embracing science, art and technology in a complex overview. Established disciplinary boundaries will be removed and we will come closer to the all-at-once world of Marshall McLuhan."[192]

Along the same lines, Teyssot also stated that radical architecture at that time "exposes and experiments with the body's state of extreme defencelessness"[193] He clearly examined the link between prosthetic devices designed by the avant-garde architects and Mcluhan's ideas on media. According to Teyssot, Mcluhan's writings resonated in the experiments of avant-garde, with an attitude that considered architecture as the extension of man, like media.[194] Consequently, these prosthetic devices offered multisensorial environments formed with a Mcluhanistic view, and presented the shift that signifies the human body and its technological extensions.

3.5. Space - Time

3.5.1. Temporariness

In the ninth issue of Archigram, Greene criticized mainstream architectural practices for not introducing "time" as a design parameter into architectural culture. According to the comparison between the disciplines of art and architecture that Greene made, the lack of emphasis on referencing to the notion of time in architectural practices

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[192] Warren Chalk, "Hardware of a New World," *The Architectural Forum* 125, no. 3 (October, 1966): 49, accessed May 19, 2019, http://www.usmodernist.org/AF/AF-1966-10.pdf.

[193] Georges Teyssot, "Hybrid Architecture: An Environment for the Prosthetic Body," *Convergence: The International Journal of Research Into New Media Technologies* 11, no. 4 (2005): 80, https://doi.org/10.1177//1354856505061055.

[194] Ibid.

presented a belatedness, as expressed in the following words of Greene: "It's funny that for some years now time has been an important influence in the 'arts', that is except in architecture."[195]

The influence from the notion of time in the works of radical avant-garde manifested itself in the tendencies toward temporality in architectural spaces, as a critique of monumentality. Accordingly, Chalk illustrated the shift from monumental space to temporal one which could be observed in the works of counter-culture architecture and expressed the group Archigram's optimistic prediction of the formation of future spaces with the introduction of time component:

> "The world of architecture will eventually move away from the idea of buildings as something fixed, monumental, great and edifying, into a situation where buildings take their rightful place among the hardware of the world."[196]

In this context, the idea of temporal space embraced by counter-culture architects was arisen against the mainstream architecture's endeavor to reach permanency. As Sharr accentuated the contrast between two extremes, avant-garde architects were searching new ways for temporal spaces, while modernists like Kahn were pursuing a new monumentality for modernism.[197] Some aspects of inflatable structures such as their airiness or lightness were drawn attention within the explorations into the new ways for temporality[198] and they brought advantages for "challenging architecture's traditional associations with permanence."[199] Consequently, inflatables turned into effective tools to promote the idea of temporality for avant-garde architects.

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[195] Greene, "LAWUN Project No. 1," 307.

[196] Chalk, "Hardware of a New World," 49.

[197] Adam Sharr, *Modern Architecture: A Very Short Introduction* (New York: Oxford University Press, 2018), 126.

[198] Ibid.

[199] Ibid.

Among many inflatable practices, Oase Nr. 7 project of Haus-Rucker-Co's was a striking example of the contradiction that existed between the monumental and temporal space. The installation designed for Documenta 5 and presented in Kassel, Germany, referred to a pneumatic environment that was erected outside the facade of Fridericianum, which was one of the oldest public museums in Europe. The project was consisted of an inflatable transparent sphere and a steel structure including a catwalk connected with a tubular ring for supporting the sphere.[200] This steel structure was completely enveloped by the sphere with a diameter of eight meters, made of the PVC foil,[201] and it offered a suspended platform which was in a direct relation with the interior space of museum. Through the steel structure linked inflatable sphere with the museum's interior, Oase Nr. 7 offered an unconventional atmosphere formed as the extension of Fridericianum building.

Figure 3.19. Haus-Rucker-Co, "Oase Nr. 7 (Oasis No. 7)" for Documenta 5, Kassel, 1972.

Source: Official Website of Ortner & Ortner Baukunst. 4 Mar. 2019.

< https://www.ortner-ortner.com/en/haus-rucker-co>

[200] "Oase Nr° 7, documenta 5, Kassel 1972," Ortner & Ortner Baukunst, accessed March 4, 2019, https://www.ortner-ortner.com/en/haus-rucker-co.

[201] Ibid.

As Choi defined the extensions of Haus-Rucker-Co such as Oase Nr. 7 project as "juxtapositions of inflatable forms with preexisting architectural structures."[202] Here, inflatable forms referred to tools to display avant-garde paradigm's ideals and radical approaches formed by new materials and techniques. In these projects, they were attached to the structures that were accused of being conservative by the counter-culture architects. Creating such a contrast between the preexisting structure and its inflatable extension, the avant-gardes aimed at making their differences visible. As cited by Lo, Zamp Kelp, one of the members of Haus-Rucker-Co, explained the temporary aspect of their projects by the following words:

> "The balloon came out every hour for 10 minutes, out of a window, (or) an apartment ... then it disappeared again. So there's a provisional aspect (to it), and a contrast to the normal, urban environment."[203]

As stated by Zamp Kelp, also illustrated in Oase Nr. 7, inflatables' juxtaposition with the "normal" environments highlighted avant-gardes' oppositions to conventional architecture. Even though their criticality was rooted in many aspects leading to a contrast, the main contradiction between the monumental and temporary space was on the focus of avant-gardes' arguments. Beside this main contradiction that the group pointed out, some additional elements were added into inflatables to strengthen this contrast. For example, referring to the artificial palm trees in Oase Nr. 7, Choi claimed that "the bubbles' utopian airs contrasted with the sterile and often empty interiors of their host structures."[204] In this claim, the interior's contrast with exterior covered not only their physical differences, but also it implied a critique to the limited and permanent boundaries of the host institution, based on its monumentality.

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[202] Esther Choi, "Atmospheres of Institutional Critique: Haus-Rucker-Co's Pneumatic Temporality," in *Hippie Modernism: The Struggle for Utopia*, ed. Andrew Blauvelt (Minneapolis: Walker Art Center, 2015), 32.

[203] Lo, "How the 1960s and 1970s inspired radical architecture".

[204] Choi, "Atmospheres of Institutional Critique," 32.

Figure 3.20. Haus-Rucker-Co, Oase Nr. 7 with artificial palm trees and the visitors waiting in front of Fridericianum, Kassel, 1972.

Source: Official Website of Walker Art Center. 6 Mar. 2019.

<https://walkerart.org/magazine/counter-currents-geoff-manaugh-on-haus-rucker-co>

For the avant-garde paradigm, the monumentality was a contribution to enhance the authority of institutional structures. In this context, Oase Nr. 7 could be regarded as an attempt to attack the permanency of Fridericianum as a historical edifice and, to oppose to the idea that the exhibition spaces should be confined to the museum building. For this purpose, Haus-Rucker-Co moved their installation from the confines of the exhibition space through a temporary extension to dissolve the permanent boundaries of host institution. In accordance with the designed circulation of visitors in Documenta 5, the installation encouraged the visitors to get out of the museum, experience the inflatable space, and then return to the museum to follow their route through the exhibition space. In that sense, this expansive environment was not "an autonomous object"[205] since the experience that it offered was engaged in the interior space of the museum. Consequently, by means of the relation between the host

[205] Ibid.

institution and its extension, it allowed for "expanding the institution's interior atmosphere to its exterior environment."[206] This expansion to the Fridericianum building could be interpreted as the avant-gardes' critique to the traditional modes of exhibition space. Besides, it also showed the group's opposition to the institutionalism through a revision of the existing structure, attaching next to it. In this context, Oase Nr. 7 provided "an iconic image of the group's critical and spectacular rapport with the city, always seeking new ways of dwelling in it."[207]

In their searches, radicality was a key aspect, as is evident from the group's name: Haus-Rucker-Co which was also "a motto—"Häuser zu verrücken," or rocking or shifting houses"[208] in German. Through their radical ideas, they rendered criticality to the existing architectural practices, particularly in their architectural intervention projects, designing temporary extensions from the facades or roofs of the buildings. Before installing Oase Nr. 7, the group built similar extension structures such as "Balloon for Two" or "Cover" projects. "Balloon for Two" was a transparent sphere hung from the window of their studio in a Viennese apartment building and it provided seating for two people with the aid of metal rods projected from the building.[209] In their project "Cover" inflated in 1971, they developed the idea of extension further by offering a temporary inflatable sphere existing for two months, enveloping Haus Lange Museum that was designed by Mies van der Rohe in 1921.[210]

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[206] Ibid.

[207] "Haus-Rucker-Co," Frac Centre-Val de Loire, accessed March 5, 2019, http://www.frac-centre.fr/_en/art-and-architecture-collection/haus-rucker-316.html?authID=86.

[208] Sisson, "More Than Hot Air".

[209] "HRC's Action Ballon für Zwei (Ballon for Two), Vienna," ZKM | Center for Art and Media Karlsruhe, accessed March 12, 2019, https://europa.zkm.de/en/events/hrcs-action-ballon-fuer-zwei-balloon-for-two-vienna/.

[210] Choi, "Atmospheres of Institutional Critique," 32.

Figure 3.21. Pages from "Alles Ist Architektur" showing an air freshener for rooms to change the surroundings, juxtaposed with a photograph of Haus-Rucker-Co's "Balloon for Two" installation.

Source: Hans Hollein, "Alles Ist Architektur," *Bau: Schrift Für Architektur und Städtebau*, no. 1/2 (1968): 20-21.

Figure 3.22. Haus-Rucker-Co, "Cover," Krefeld, 1971.

Source: Official Website of Ortner & Ortner Baukunst. 10 Mar. 2019.

< https://www.ortner-ortner.com/en/haus-rucker-co>

Expressing the avant-garde architects' strong opposition against monumentality, inflatable extensions to the existing buildings were instrumental in fostering temporal spaces. By juxtaposing with mostly institutional structures, these practices served as

tools to show their criticality since they strengthened the contrast between temporal and monumental spaces. However, besides inflatable extensions, there were also large-scale practices which highlighted the momentary nature of inflatable structures. Temporary structures that were brought together in such public events, especially in the festivals and fairs, which held for a limited time period.

By the beginning of the 1970s, these experimental attempts emerged as pop-up cities, including "Whiz Bang Quick City 1 and 2" built near Woodstock, US and "Instant City" built in Ibiza, Spain. In a 1971 article published in Life magazine and titled "Momentary Community for a Mobile Era," architectural critic Walter McQuade reported that the posters of Whiz Bang Quick City were sent from the school of architecture of the City College of New York to the other architecture schools in US, including Cornell, Harvard, Parsons School of Design and Columbia.[211] In this context, he regarded this event as "an invitation to design students to get away from the conventional tedium of paper life, the drawing of buildings that would never be built."[212]

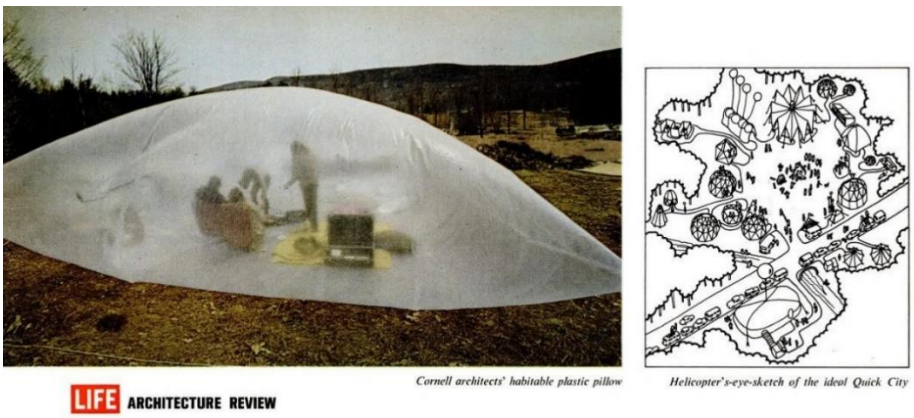

Figure 3.23. A page from "Life" magazine showing a photograph and a sketch of Whiz Bang Quick City 1.

Source: Walter McQuade, "Momentary Community for a Mobile Era," *Life*, 23 July 1971.

[211] Walter McQuade, "Momentary Community for a Mobile Era," *Life*, July 23, 1971.

[212] Ibid.

Figure 3.24. A photograph showing the aerial view of "Instant City" in Ibiza, Spain, 1971.

Source: Wikimedia. 13 Mar. 2019.

<https://commons.wikimedia.org/wiki/File:Ciudad_Instant%C3%A1nea._Jos%C3%A9_Miguel_Prada_Poole.jpg>

Like Whiz Bang Quick City, other inflatable cities were built by the participants of the event. Referring to the do-it-yourself nature of the inflatables, these cities were not only constructed easily and fast, but also folded in the same way after the event had finished. What appealed to the practitioners of inflatables was their ability to transform over time, what also contributed to introduce the notion of time into the architectural culture during this period. Steiner points out the dynamicity of inflatables and its relation to the notion of time with these following words:

> "Once the element of time was added to the equation, the bubble as a paradigm of static form would be replaced with a paradigm of a dynamic system. This inclination also took the flip side of the bubble's structural properties into account: the possibility of sudden and dramatic collapse."[213]

As also discussed in section 3.2, Steiner explained that the "formlessness" of pneumatic structures was caused by their ability to transform. Referring to this ability,

[213] Steiner, "Bubbles," 162.

he stated that inflatables were "always in a stage of adaptation, from its inception to its dissolution"[214] and this adaptation could be explored "in this intrinsic ephemerality, this thematization of transience that the virtues of pneumatics lay."[215] In other words, by the means of the adaptive aspects of inflatable structures, they were at the center of experimental attempts toward temporality. According to Ron Herron from Archigram, what they were looking for was "architecture that built for change… a building that accepted that things don't sit there forever, the architecture should adjust and adapt."[216]

Similarly, in Archigram's statement for the 1968 Milan Triennale, the group noted that they took the advantage of "the ability of objects and assemblies to metamorphose over a period of time so that we are no longer stuck with monuments of a forgotten day…"[217] With their statement, they pointed out that temporality could be achieved with transformation of space and by this means these objects turned into practices which demonstrated avant-garde architects' challenge to monumentality. In this context, Cook regarded pneumatics as a tool for the "gradual erosion of monumentality"[218] that was rendered possible thanks to the technological developments introduced into the architectural culture during this period of time.

The monumentality which the avant-gardes were opposed to could defined as "being physically permanent" in a way that strengthen the dominancy of institutional structures. On the contrary, the temporary structures that avant-garde architects offered were aimed at a long-lasting effect on users, even though these structures were

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[214] Ibid, 157.

[215] Ibid.

[216] "Archigram," filmed for 'The Late Show' in 1990, YouTube Video, 14:55, posted by "misterbigtown," November 2010, https://www.youtube.com/watch?v=IMQGrF06uz8.

[217] Peter Cook ed., *Archigram* (New York: Praeger Publications, 1973), 83.

[218] Cook, *Experimental Architecture*, 67.

erected for a short time period. Brayer explained this phenomenon by the term of "permanent adaptability"[219] and commented on that this dimension "transforms architecture into an environmental device, at once flexible and open, constructing in effect its own demise."[220]

Accordingly, she pointed out that these structures' potential to collapse was significant at least as much as that to inflate. At this point, she referred to a quotation from the book "Arthropods: New Design Futures" written by Jim Burns in 1972: "Temporary structures, environments, expositions, inflatables, the object that, if we wish, can be made obsolete after use, will be perhaps replaced by other 'models.'"[221] In this context, she expressed that temporary structures led to the generation of alternative models in architectural spaces since they were able to replace with new models shaped according to the changing needs after a certain period of time. Therefore, they could be considered as practices independent from time due to their long-lasting effect rooted in their being temporal. This shifted attitude towards temporality of space was expressed by Greene's words in Archigram 9 as: "The temporary place, retained perhaps permanently in the memory. An architecture that exists only with reference to time."[222]

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[219] Brayer, "Work and Play in Experimental Architecture, 1960-1970,"

[220] Ibid.

[221] Jim Burns, *Arthropods: New Design Futures* (New York; Washington: Praeger Publishers, 1972), 43, quoted in Brayer, "Work and Play in Experimental Architecture, 1960-1970."

[222] Greene, "LAWUN Project No. 1," 307.

CHAPTER 4

EXPANDED DEFINITION OF ARCHITECTURE

> "A true architecture of our time will have to redefine itself and expand its means. Many areas outside traditional building will enter the realm of architecture, as architecture and "architects" will have to enter new fields.
>
> All are architects. Everything is architecture."[223]

As it was examined the shifted relations of space in the Chapter 3, inflatable works of the avant-garde architects manifested a new design approach into architectural scenes during the period between the late 1960s and early 1970s. In this redefinition of architecture, the established boundaries of the discipline were not accepted as they used to be, on the contrary they were challenged in many inflatable practices designed by the avant-gardes who brought out the alternatives to the "traditional" modes of architecture. Their endeavor to reassess the limited boundaries of architecture resulted in an "expansion," which broadened the scope of the discipline and enabled to draw a radically new frame.

"Expansion"[224] as a term discussed in the seminal essay of the influential art historian Rosalind Krauss: "Sculpture in the Expanded Field," was stressed in many selected examples of inflatables mentioned in the previous chapter. In her essay, Krauss claimed that traditional categorization of art forms such as sculpture and painting remained incapable of describe the new forms of art emerged in post-war years. She

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[223] Hollein, "Everything is Architecture," 462.

[224] Rosalind Krauss, "Sculpture in the Expanded Field," *October* 8, (Spring, 1979): 31-44.

was of the opinion that it should be replaced with an inclusive categorization, expanding into the new practices of art including land-art, installations, interventions and performances. Accordingly, she proposed a new conceptualization for sculpture by using the phrase of "expanded field" and referred to these practices as sculpture's expansions, which altered the boundaries of discipline and thus made it possible to be freed from the confines of traditional art.

Along the same lines, the works of avant-garde architects implied a departure from traditional boundaries of architecture. In this regard, the term "expansion" could be borrowed from art history and adapted into a concept to describe the shift occurred in the architectural discourse during this period. Accordingly, this expansion altered the boundaries of architecture and provided a new framework in the same way that it did in the boundaries of art. As will be explained in this chapter, taking into account the contribution of inflatable practices, the main lines of this expanding framework for architecture could be expressed as follows: firstly, this expansion was visible in the avant-gardes' "radicality," which was "exploding the notion that "architecture is building"[225] and taking anti-building products of architecture into this expanded frame; secondly, it was visible in their "criticality," which allowed to manifest the avant-garde's ideas and thus enabled them to transform the existing condition according to their ideals.

Referring to Krauss's term of expansion, Chapter 4 is aimed at identifying avant-garde paradigm through their redefinition of architecture. In this context, this part of study is intended to explore the leading motives for avant-garde architects to construct an expanded frame for the discipline. Through this exploration, it seeks to answer the questions of how the avant-garde tendencies expanded the architectural discourse in the late 1960s and early 1970s and what was the role of inflatable works of avant-gardes in this expansion.

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[225] Cook, *Experimental Architecture*, 67.

4.1. Inflatables as Anti-Building Products of Architecture

To uncover the roots of counter-cultural ideas emerged in architectural scenes, an inquiry into the ideas forming the mainstream architectural culture during this period of time was necessitated. The idea that was dominant at that time referred to an exclusive approach to architectural design, which was taking only buildings into account as the ultimate products of architecture. This approach underestimated other products of architecture and left them out of the scope of the discipline. These products involved such practices which were not buildings, namely the written works of architecture such as magazines or manifestos; drawings and collages; exhibitions; installations and all of the "other" acts of architecture.

In that sense, inflatables as one of the other products of architectural practice were also widely criticized by the "building builder architects." These architects claimed that building was the only solution to overcome spatial problems. Accordingly, they accused inflatables of being incapable of solving problems. Even Stewart Brand, the founder and editor of Whole Earth Catalog which was a leading counter-culture magazine in the US, excluded inflatables from the scope of discipline, with his words: "Inflatables are trippy, cheap, light, imaginative space, not architecture at all."[226] As Lewis commented on these words, Brand's stance could be explained by that "the flawed form of inflatables, their impracticality, seems to have overpowered their political and utopian appeal."[227] Nevertheless, it could be stated that inflatables were still undervalued even by the pioneers of counter-culture movement.

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[226] At this point, it should be noted that Brand was not an opponent to the inflatables, on the contrary, he considered them as "wonderful recreational structures" but not architecture. See, Stewart Brand, "Inflatocookbook," in *The Last Whole Earth Catalog,* ed. Stewart Brand (Menlo Park, CA: Portola Institute, 1971), 107.

[227] Danielle Lewis, "Becoming Monuments and Embodying Utopias: The Processes of Inflatable Architecture in the Work of Michael Rakowitz and Ana Rewakowicz" (Master's thesis, Concordia University, 2010), 52, https://spectrum.library.concordia.ca/979405/1/MR70971.pdf.

Instead of the conventional definition of architecture in which the architectural product was merely reduced to the building, avant-garde paradigm offered "an expansion" to the profession. Opposing to the "building builder architects" who were seeking the solutions of spatial problems in constructing buildings, avant-garde architects embraced the famous dictum of Cedric Price who influenced them with his radical ideas: "the best solution to an architectural problem is not necessarily a building."[228] Referring to Price's radicality, Banham also argued that the possible solutions for an architectural problem should not be restricted only to buildings. In this context, avant-garde architects as the subjects in the quest for other ways of doing architecture rather than constructing buildings contributed to the expansion of architectural practices. In addition to that, they also brought a redefinition of the role of architect through the change of the very first question that should be asked by the architect. In Banham's words:

> "...but the basic approach is certainly one that appeals to me, a way of really not saying, "What kind of building do you want?", but almost of asking first of all, "Do you really need a building?""[229]

As it was stated that "the normal modus operandi for an architect is to add something physical to the world"[230] in the book "Spatial Agency: Other Ways of Doing Architecture," their expansive approach to problem-solving could be regarded as an act against what was considered as "so-called" normal within the architectural culture

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[228] Jeremy Till referred to as "an ongoing concern in Price's work." See, Cedric Price, *Cedric Price: Works II* (London: Architectural Association, 1984), 18, quoted in Jeremy Till, *Architecture Depends* (Cambridge, Massachusetts: The MIT Press, 2013), 167.

[229] Reyner Banham, BBC Radio 4 (5 November 1976), quoted in Cedric Price, *Cedric Price: The Square Book* (London: Academy Editions, 2003), 107.

[230] According to Merriam-Webster dictionary, the term "modus operandi" is used describe "a method of procedure." See, *Merriam-Webster Dictionary, s.v.* "modus operandi," accessed May 19, 2019, https://www.merriam-webster.com/dictionary/modus%20operandi. Here, "the normal modus operandi for an architect" was referred to the traditional ways of doing architecture. See, Awan, Schneider and Till, *Spatial Agency*, 31.

of this period. In this context, this opposition signified a detachment from the established "norms" of the discipline through producing architectural products which were not categorized as buildings. In this context, emerging shift in architectural production was a reflection of the radicalism of this era and it must be read in parallel to the radical transformations on all scales in the late 1960s and early 1970s.

As Cedric Price named as "anti-buildings,"[231] these products of architecture during this period were used as a tool to manifest the radical approach of avant-gardes. The anti-buildings of architecture accommodated with the radical transformation in architectural discourse, by expanding not only architectural theory but also architectural practice with the involvement of new forms of architecture such as inflatable structures. Within the architectural discourse at that time, the question of that "what is and is not architecture" was a primary bearer of the discussions on the scope of discipline. For the avant-garde paradigm, the answer of this question was quite inclusive in accordance with their radicality, as summarized in the title of Hans Hollein's seminal text in Bau journal: "Everything is Architecture."[232]

"Everything is Architecture" was one of most provocative texts of radical avant-gardes, as Lefaivre regarded as "the wildest"[233] among all architectural manifestos emerged in 1960s. As referred many times with quotes from the manifesto of Hans Hollein throughout this study, this edition of the Austrian "Bau" journal illustrated the extreme that the avant-gardes belonged in the architectural debates. This thirty-five

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[231] In accordance with the usage of prefix "anti-," the term "anti-building" was used for strengthening the opposition of avant-gardes. Referring to that Cedric Price called himself as an "anti-architect," anti-building" was commonly used for describing Price's works, especially his "Fun Palace," in many architectural publications.

[232] "Alles ist Architektur" (translated as "Everything is Architecture") is the title of Hans Hollein's seminal text in the 1968 (1/2) edition of the Austrian "Bau" journal. Hollein declares a manifesto which the slogan: "Alles ist Architektur" repeats between images throughout the issue. See Hans Hollein, "Alles Ist Architektur," 1-32.

[233] Liane Lefaivre, "Everything is Architecture: Multiple Hans Hollein and the Art of Crossing Over," *Harvard Design Magazine*, no. 18 (Spring/Summer 2003): 1.

pages issue of Bau was comprised of mostly images, yet there was the manifesto-like text: "Everything is Architecture" at the first page. Even though the text was short, it was notable for its radicality in the architectural culture at that time. This issue of Bau magazine, which was "a visual and verbal manifesto,"[234] expressed the need for a redefinition of architecture, starting with the following sentence: "limited and traditional definitions of architecture and its means have lost their validity."[235] In his redefinition, the claim of that "architects have to stop thinking in terms of buildings only"[236] was accented. Opposing to the traditional, Hollein aimed at expanding architecture and its means "to liberate the architectural imagination and allow it to roam unexplored territories and associations."[237]

As was evident from the title, Hollein claimed that everything could be considered architectural, ""..everything" can be seen as "the means of architecture""[238] This claim of Hollein crystallized the expansive approach of avant-gardes, reforming architectural discourse through his assessment that any object or medium could be inserted into the scope of architecture. Accordingly, he used many collaged visuals to exemplify these elements which constituted architectural discourse during this period: a pill, a spray can, a lipstick, binary codes, soap bubbles, space suits, sunglasses, portraits of some famous figures: Sergei Eisenstein, Albert Speer and Che Guevara, two Magritte paintings and the inflatable works of Frei Otto and Haus-Rucker-Co.

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[234] Craig Buckley, "32. Bau: Schrift Für Architektur und Städtebau, no. 1/2, Vienna," in *Clip, Stamp, Fold: The Radical Architecture of Little Magazines 196X to 197X*, eds. Beatriz Colomina and Craig Buckley (New York: Princeton University Press, 2010), 105.

[235] Hollein, "Everything is Architecture," 460.

[236] Ibid, 462.

[237] Liane Lefaivre, "Hans Hollein as "Everythingizer," Hans Hollein as Curator," in *Exhibiting Architecture: A Paradox*, eds. Eeva-Liisa Pelkonen, Carson Chan and David Andrew Tasman (New Haven: Yale School of Architecture, 2015), 147.

[238] Lefaivre, "Everything is Architecture," 4.

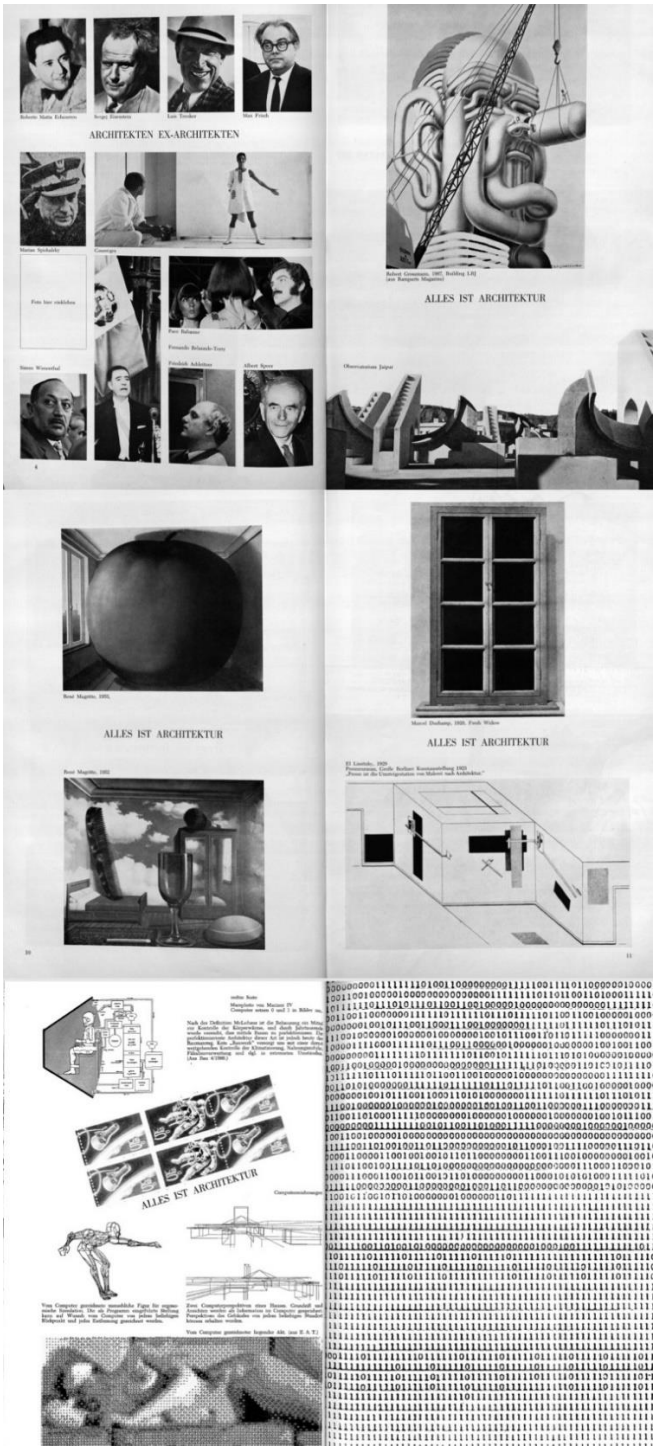

Figure 4.1. Pages from "Alles Ist Architektur".

Source: Hans Hollein, "Alles Ist Architektur," *Bau: Schrift Für Architektur und Städtebau*, no. 1/2 (1968): 4-5, 10-11, 24-25.

Through the visuals and the repeated use of the same sentence "Alles ist Architektur" across these visuals, Hollein was on the search for a better definition of architecture. In his words:

> "Numerous tasks and problems will continue to be solved traditionally, through building, through "architecture." Yet for many questions is the answer still "Architecture" as it has been understood, or are better media not available to us?"[239]

According to the rhetorical question that he raised, Hollein was of the opinion that the redefinition of architecture was possible with an exploration into the new media. In this context, these provocative visuals served as a display showing the radicality of avant-gardes' ideas, since "never had the definition of architecture been stretched to include these objects,"[240] as Lefaivre expressed. Her comments on the expansion of architecture continued as follows:

> "And never had architecture been so pushed into the most vibrant elements of a contemporary culture—in this case sexuality, rebellion, transience, violence, futurism, uninhibitedness, hipness, unconventionality, daring, and political satire."[241]

As Lefaivre referred to Hollein's approach as "the concept of everythingizing,"[242] it was intended to include the objects that did not associated with architecture before the 1960s into the architectural discourse. Through this expansion, the opposition to of avant-gardes was resulted in a new framework for the discipline, which the traditional and strictly drawn boundaries of architecture were dissolved. In this context, his "everythingizing" approach served the purpose of subverting the modernist paradigm

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[239] Hollein, "Everything is Architecture," 460.

[240] Lefaivre, "Everything is Architecture," 4.

[241] Ibid.

[242] For a detailed discussion of "the concept of everythingizing," see Lefaivre, "Everything is Architecture," and Lefaivre, "Hans Hollein as "Everythingizer," Hans Hollein as Curator."

and its hyperfunctionalism, which has been a dominant theme in the architectural discourse until that time. "Questioning the pre-war functionality that defined modernist architecture,"[243] Hollein claimed that these objects of contemporary culture were also the elements of architectural discourse as the buildings were, even though they were seemed to be irrelevant for the scope of architecture.

Hollein's radical claim featured with striking visuals was in tune with the atmosphere of 1960s, characterized by the disengagement from traditionality in all scales. In accordance with his redefinition of architecture which promoted to learn from other disciplines, his approach was visible in the multidisciplinary tendencies in architectural schools, magazines and practices.[244]As an issue published in 1968, "Everything is Architecture" was significant in terms of its effect on the architectural culture since it marked the presence of a new design generation called as "avant-gardes," who were strived for moving beyond the established frame of architecture. As Hollein referred to the multidisciplinary tendencies during this period, pushing the limits of architecture necessitated to explore "a broad range of materials and possibilities-of means that have been used in other fields for ages"[245] and import them into architectural scenes via architectural experiments.

In this context, the notion of experimentation contributed to the expansion of architectural practices. According to Hollein, these experiments emerged from the need "to change and transport our "environment" as quickly and easily as possible"[246] and opened up new possibilities of inventing new ways of architectural practice.

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[243] "Everything is Architecture: Bau Magazine from the 60s and 70s," Institute of Contemporary Arts-London, accessed April 10, 2019, https://archive.ica.art/whats-on/everything-architecture-bau-magazine-60s-and-70s.

[244] Lefaivre, "Everything is Architecture," 4.

[245] Hollein, "Everything is Architecture," 462.

[246] Ibid.

Consequently, through these experiments, avant-garde architects were able to overcome the architectural problems by introducing new media of architecture, not necessarily a building. Accordingly, Hollein pointed that "the extension of the media of architecture beyond pure tectonic building and its derivations"[247] was rooted in the experiments of avant-garde architects and led to spread anti-building practices of architecture.

Among these experiments of the new design generation, inflatables were addressed as one of the new media for architecture. As referred in "Everything is Architecture," inflatable architecture was an achievement of the avant-gardes' attempts to expand architecture with the aid of a multidisciplinary approach. In this context, inflatable practices embodied the concept of "expanded architecture" with respect to that they turned into the realizations of the avant-gardes' enthusiasm for new media of architecture and the possibilities that inflatables' experimental nature offered. Referring to Banham's point of "apparent do-it-yourself potentials of low-pressure inflatable technology,"[248] Moon asserted that inflatable structures became the pioneers of "a new way of thinking about architecture in an expanded field"[249] and thus they were the anti-building products which demonstrated architecture's fusion with other fields.

Consequently, all products of inflatable architecture, including texts, drawings, collages or installations could be categorized under Price's concept of "anti-buildings" and served as a means for expansion of architectural products. In proportion as inflatables became popular among avant-garde practices, they became highly controversial products of architectural discourse. Within the scope of the heated

[247] Ibid.

[248] Banham, "Monumental Windbags," 31.

[249] Moon, "Pneumatic Decoys," 363.

debate over how to define architecture, inflatable architecture stood for the idea that "everything is architecture" and thus they were the advocates for the radical arguments of avant-gardes. In this context, inflatables provided a support to redefine disciplinary boundaries, especially taking into account the relationship between the architecture and technology.

Through an expansive approach, avant-gardes evolved an architecture which was able to rupture the conventional discourse. In this redefinition, the notion of "architectural experiment" bound with the technological developments expanded architectural products with the aid anti-buildings, which did not need walls, floors and a roof to define an architectural space, but took the advantage of possibilities that new media of architecture enhanced. As significant examples of the anti-buildings, what the inflatable works of avant-gardes proposed was that other means of architecture rather than building were possible. Accordingly, the expansion of architecture and its means in the late 1960s and early 1970s was a result of the radicality of avant-garde architects, which prevented them accepting the established boundaries of discipline as they used to be and led them to oppose the conventional definition of architecture.

4.2. Statements: Inflatables Between Idea / Ideal

In the exhibition text of "Hippie Modernism: The Struggle for Utopia," the achievements of radical experiments held by the counterculture movements during this period were not limited to the exploration of new media and materials only, it was also stated that they "challenged societal and professional expectations, overturned traditional hierarchies, and formed alternative communities and new ways of living and working together."[250] In this context, it could be expressed that radical experiments of avant-garde architects were aimed at expanding not only the media of architecture by introducing new materials and techniques, but also the concerns of

[250] "Hippie Modernism: The Struggle for Utopia," The Walker Art Center, accessed April 14, 2019, https://walkerart.org/calendar/2015/hippie-modernism-struggle-utopia.

discipline with their attempts to engage architecture with the social context of the late 1960s and early 1970s. Along the same lines, Moon pointed out the contribution of inflatable experiments to the expansion of architecture, by means of "their ability to perform, both technically and culturally"[251] as follows:

> "..the architectural inflatable occupies the territory between two radically different, yet converging disciplinary agendas: one being material and structural innovation, and the other being social and cultural engagement. It is precisely this sweet spot—the capacity for pneumatics to inform not only how we design and construct, but also how we inhabit space."[252]

In this context, inflatable experiments needed to be examined in parallel with the transformation of society and culture during this period of time since they were conceived from the criticality of avant-gardes. Their criticism was directed towards the existing architectural practices that could not satisfy the shifting spatial needs of society due to the lack of social engagement of existing architectural practices. Consequently, these attempts of avant-gardes in the form of architectural experiments also referred to "a search for a new kind of utopia, whether technological, ecological, or political"[253] and thus they embodied avant-gardes' critical approach to the traditional modes of architecture.

As pointed out previously, starting in the 1960s, the transformations that the society underwent in many scales, such as political, economic or cultural, had an impact upon the architectural thinking. Considering the criticism of avant-gardes, this utopian approach to design was rooted in the idea of avant-garde architects that architectural space should evolve in accordance with these drastic transformations in society. In line with Güneri's definition on all types of utopianism as "alternative constructs

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[251] Moon, "Pneumatic Decoys," 363.

[252] Ibid.

[253] The Walker Art Center, "Hippie Modernism."

challenging established settings and situations perceived either as problematic or insufficient,"[254] avant-gardes' criticality resulted in the utopian projects through their oppositions to traditional space. These utopian projects were formed with the objective of transforming space through an analysis of what was "problematic or insufficient" and thus an offer to fix it.

In this context, the utopian projects enabled the avant-gardes to illustrate their imagination and develop a vision of the future, and thus they manifested avant-gardes' desires on the formation of space. In these attempts, "critical thinking is transformed into a comprehensive construct of the mind – how thoughts are transformed into will."[255] Accordingly, these projects could be regarded as a tool for materializing the ideas of avant-gardes through the construction of new models for architectural space and a link connecting the "idea to ideal."[256] In accordance with the objective of utopian models, inflatables were aimed at bringing criticality to the existing architectural scenes. Through the shifted relations of space that was discussed in Chapter 3, the critical operations of inflatable idea were clarified in the oppositions of avant-garde paradigm. These oppositions such as soft vs. hard or temporary vs. permanent or plastic vs concrete led the avant-gardes to redefine the discipline and expand the established frame of architecture into their ideals.

Attacking the established frame of architecture as an act rooted in avant-gardes' criticality could be explained by their tendency to challenge the traditional norms and values of discipline. In this context, it also intended to weaken the dominance of institutional structures. This attitude which was directed towards to the institutional and therefore dominant structures was visible in Hollein's claim that "today a museum

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[254] Gizem Deniz Güneri, "A New Conceptual Framework for Architectural Utopia(nism)s," (Ph.D., University of Middle East Technical University, 2014), 97.

[255] Ibid, 98.

[256] Statement based on the discussions with Prof. Dr. Ayşen Savaş throughout this study.

or a school can be replaced by a TV set"[257] with the aid of the extensions of media. Similarly, inflatable architecture was also referred as a new medium of architecture in "Everything is Architecture." Inflatables, like many objects of contemporary culture of 1960s, had a place in the manifesto of Hollein to declare the shift in the architectural discourse, which led to relate architecture to the culture that was transforming rapidly. Owing to its physical characteristics, inflatable material matched with the ideals of avant-garde paradigm such as mobility or temporality. Since these new concepts introduced into architectural culture represented a break from the traditional canons of architecture, inflatables were embraced by the avant-gardes to strengthen their critical stance.

Consequently, they moved beyond being a material and technical innovation, which expanded architectural practices, and turned into the objects manifesting avant-gardes' ideals through their utopian proposals. In this context, the use of inflatable idea to depict utopian scenes was related not only with the desire to construct ideal spaces with the aid of inflatables' physical characteristics, but also with what it was enabled to reform architectural theory: a ground to show their criticality to the established frame of architecture. Stinco, one of the former members of the group Utopie, pointed out the relationship between the inflatable structures and utopian thinking in architecture as follows:

> "Did we with our inflatable structures create a sort of architectural utopia? I do not think so. I believe, rather, that our projects seemed utopian because they sought to inscribe themselves within an analysis, a critique that desired radically to change certain social relations... We desired to show what was truly possible because it was technically feasible."[258]

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[257] Hollein, "Everything is Architecture," 462.

[258] As it was stated in the book The Inflatable Moment: Pneumatics and Protest in '68, the text of Stinco was originally presented as a lecture in May 1998 at the conference "Reassessing '68 in New York and Paris: Architecture, Activism, and the Academy," organized by the Temple Hoyne Buell Center for the Study of American Architecture at Columbia University. See, Antoine Stinco, "Boredom,

According to Stinco, what associated inflatables to the utopian thinking in architecture was their criticality. By this means, inflatables spread among the avant-gardes who were strived for fusing architecture with their utopian ideas. Through the avant-gardes' endeavour to assign a broader meaning to inflatable objects, they began to be considered as the symbol of utopia in the architectural discourse. Within the expanded frame that the critical operations of inflatable objects redefined, "the "heavy" statements about radical politics and shifting definitions of society attached to glorified balloons were nothing more than hot air"[259] and inflatables served the purpose of declaring radical statements that were raised in the avant-garde circles of architecture.

Accordingly, the appeal of inflatables for avant-garde architects could be explained by the power of these structures in subverting the existing paradigm. Sisson pointed out the significant effect of the inflatables on architectural discourse and defined the products of inflatable architecture in following words: "..grounded in theory and more influential than one might imagine."[260] Referring to the visuals that showed the objects of contemporary culture in the issue of "Everything is Architecture," Hollein attributed the effect of these objects to their meaning in architectural discourse. As he stated,

> "There is change as to the importance of "meaning" and "effect." Architecture affects. The way I take possession of an object, how I use it, becomes important...Indeed, their (buildings) importance-the role they play-is based on this effect of information."[261]

School, Utopie," in The Inflatable Moment: Pneumatics and Protest in '68, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 71.

[259] Sisson, "More Than Hot Air".

[260] Ibid.

[261] Hollein, "Everything is Architecture," 462.

According to Hollein, a product of architecture should also be evaluated according to what it signified in architectural culture and moreover, what it meant for its practitioners. In the case of inflatable architectural practices spreading during the late 1960s and early 1970s, the way that the avant-gardes used inflatable objects served for transmitting their ideas regarding the formation of space. By means of the use of inflatable objects associated with the utopian ideas, avant-gardes indicated the necessity to reconfigure architectural space according to the societal changes occurring in the 1960s' life and culture. In this context, inflatable objects meant "a festive symbol of the new energy"[262] for the architects who shared common visions on the transformation of architectural spaces and the critical stance to form a new design approach.

Inflatable material to construct an air-supported structure which was first used for military purposes of US army, to cover early radar antennas in 1946,[263] however, it had gained a new meaning in the architectural scenes since the 1960s. Ascribing this new meaning which made inflatables defenders of critical thoughts in architectural discourse, inflatables allowed its practitioners to illustrate their ideals on space. In this context, these structures opened up new discussions and debates which led to expand architectural theory as well as architectural practices. This expansion was rooted in "the ability (of inflatables) to operate as mechanisms for launching social, political, and environmental critique"[264] and was visible in the utopian projects of avant-garde architects.

As a result of their critical stance, these utopian projects unfolded avant-gardes' visions and displayed emerging possibilities of space production. These possibilities presented "flexible, adaptive ways of living outside of institutional control and

[262] Stinco, "Boredom, School, Utopie," 71.

[263] Dessauce, "Annotated Catalog of Works," 130.

[264] Moon, "Pneumatic Decoys," 365.

monotony,"[265] in this way inflatable structures functioned as experiments to challenge the dominant modes of architecture. Considering the political context of the uprising of 1968, avant-garde architects designed utopian projects for the sake of "identifying architecture as a form of cultural critique and finally as a social and political practice"[266] as a necessity to respond to the emerging conditions. In their objection to mainstream architecture, these architects benefited from the inflatable structures to offer ideal environments constructed within the frame of their utopian ideas. According to Claude and Léon Gaignebet, the symbolic dimension of inflatables in utopian architecture summed up in the following words: "it (the spirit of inflation).. is no more than the expression of a will to power."[267] Consequently, inflatable idea enabled avant-garde architects to transform the existing architecture according to their ideals and expand its frame.

[265] Lewis, "Becoming Monuments and Embodying Utopias," 50.

[266] Awan, Schneider and Till, *Spatial Agency*, 87.

[267] Claude and Léon Gaignebet, "Untimely Considerations on Inflatables," in *The Inflatable Moment: Pneumatics and Protest in '68*, ed. Marc Dessauce (New York: Princeton Architectural Press, 1999), 30.

CHAPTER 5

CONCLUSION

This thesis makes a reading of the inflatable works produced by the avant-garde architects during the late 1960s and early 1970s. Through the reading of these works, it aimed at an exploration into this new design generation who developed a radical and critical approach to the existing architectural spaces. Approaching to the avant-garde architects as the main bearers of new ideas in architectural thinking at that time, this study was intended to conduct an analysis of architectural discourse based on the leading motives of avant-gardes to propose inflatable idea and import it into the architectural scenes.

Accordingly, this study starts with the assumption that the period of the late 1960s and early 1970s marked a paradigm shift in architectural discourse. It is the claim of the research that the shift could be observed in the inflatable works of avant-garde architects, in other words, inflatable architecture made this shift visible, moving outside the traditional boundaries of the discipline into an expanded field. As an agent which contributed to the expansion of architecture, and consequently, that of architectural discourse, inflatable space served as a tool to materialize this shift and provides a case study to develop a better understanding of the new elements and relations emerged in this period. In this context, this research intends to search out several notions such as mobility, fluidity, dynamicity, adaptability, immateriality, play, user participation and temporality, spreading among the counterculture architects. Relating examples of inflatable spaces to these notions emerged in architectural culture of the 1960s, it claims that avant-garde architects used inflatable idea to express their radical and critical stance to the existing modes of architecture. Accordingly, reappearing of these notions in contemporary architecture raises a critical question: “how all these notions are reconstructed today?” for further research.

Within the current time discussions in architectural theory, inflatables are referred to as either functional tools to cover big spaces like tennis courts, festival zones and concert halls; or artistic media displayed in exhibitions and fairs in the form of pavilions, installations and performances. Accordingly, we can mention of different types of continuity of inflatable architecture today. The presence of inflatables still signifies an innovational energy of its practitioners, however current applications of inflatables are distant from the ideals that radical avant-gardes adopted in the late 1960s and the early 1970s. In this context, the difference between the inflatable works produced at that time and those of today could be explained by the fact that avant-gardes' works had a contextual background. This background was framed in accordance with their ideologies and signified the radical and critical stances of this design generation.

In the review of contemporary architectural practices of inflatables, the lack of contextual background could be identified as the major deficiency. This prevented me from including contemporary examples of inflatables within the frame of this research. These examples could be referred to as the emulations of inflatable spaces produced by avant-gardes, which means inflatables are still used functionally in contemporary practices of architecture, yet their significance in terms of the relationship that they establish with architectural discourse has declined after the 1970s.

Through an examination on the following works of avant-garde architects afore-mentioned in this thesis, it could be said that their interest in producing inflatable architecture popped up and then faded away. Therefore, the spread of inflatable spaces during the late 1960s and the early 1970s could be explained by that these architects were influenced by the atmosphere of this period which encouraged a questioning of the mainstream. In accordance with the social, cultural and political waves of change during this period, the architects of this strand used inflatable spaces to manifest their departure from existing architectural practices and promote a new understanding of architectural space.

Even though inflatables have lost their contextual background since 1960s, the notions that the avant-gardes stood for, such as mobility or temporality, are still being challenged in many ways in contemporary architectural scene, with the aid of expansion of architectural media. In this context, "what happened to inflatable structures" is a tricky question. Peter Cook later described Archigram's vision in this period with following words: "..at the time I was probably naive enough to not regard it as utopian."[268] Yet, for the scope of this thesis, whether or not the inflatable spaces of avant-gardes were actually able to achieve their ideals is beside the point. What matters is that inflatable spaces became an experimental medium to express their ideas. This made inflatables discursive through their contribution to the transformation of architectural space and the formation of architectural discourse during this period.

Therefore, emphasizing the strong bond is formed between the inflatables and architectural discourse, this study seeks to answer the following question: "how the inflatable spaces can be interpreted as tools to read the epistemological shift in architectural thinking?" The shift from the limited frame of architectural discourse to an expanded one referred to a break from the conventional definitions in architecture, which was influenced not only by social, political and cultural upheavals but also the technological developments during this period. Constructing a frame including the underlying dynamics of this era, this thesis attempted to characterize the formation of architectural discourse. In this way, it proposes to examine these shifted relations of space in five subtitles, also emphasizing five main constituents of architectural design, namely: site, form, material, user and time. Through this categorization, this study was aimed at exposing the aforementioned notions embraced by avant-garde architects, referring to that the emergence of these notions in architectural culture was rooted in the oppositions to existing practices. Accordingly, it attempts to draw an overall frame for the ideas of avant-gardes, which manifests a "regularity."

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[268] Peter Cook, "THIS WAS OUR UTOPIANISM!: An Interview with Peter Cook," interviewed by Zawia, *Archdaily*, January 31, 2014, accessed June 22, 2019, https://www.archdaily.com/472429/this-was-our-utopianism-an-interview-with-peter-cook.

In the light of the inquiries into the boundaries of discourse, this thesis emphasizes two ways of "expansion": First, the expansion occurred in a way that generate new ways of doing architecture, moving beyond the architectural production from the confines of the idea of "building as an end product." This idea was opposed by the avant-gardes' claim that constructing a building was not only way to solve spatial problems, in fact they could be inadequate with the introduction of the new media into the architectural culture since the 1960s. Accordingly, this thesis approaches inflatables as one of these media and thus it claims that "inflatables as anti-building products of architecture" contributed to the expansion of architectural production. Second way of expansion manifests itself in the avant-gardes' criticality, leading to establish a link between architecture and the social, political and cultural context of this era. Through this engagement of architecture, the frame of discipline expanded and thus allow avant-gardes for expressing their ideals within this expanded frame. In this context, utopian proposals of inflatables were referred to as critical operations of inflatable idea and provides a link connecting the avant-gardes' ideas to their ideals to develop a vision of future spaces.

Consequently, this study positions inflatable works of avant-gardes at the expanding boundaries of architectural discourse, claiming that inflatables were significantly discursive objects of architectural culture during the late 1960s and early 1970s since they pushed the limitations of conventional space and thus contributed to the redefinition of architecture. Emphasizing this positioning, the thesis is directed towards illustrating the pre-assumed paradigm shift in architectural discourse by the examples of inflatable works. With an endeavour to extract the underlying ideas from these examples, it displays the relation between the ideas and works of inflatable architecture as well as that between architectural theory and practice.

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