The Aviator's (Re)Vision of the World: An Aesthetics of Ascension in Norman Bel Geddes's Futurama

by

Adnan Morshed

Master of Science in Architecture Studies (1995)
Massachusetts Institute of Technology
Bachelor of Architecture (1991)
Bangladesh University of Engineering & Technology

Submitted to the Department of Architecture
In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Architecture: History and Theory of Architecture

at the

Massachusetts Institute of Technology

February 2002

© 2001 Adnan Z. Morshed. All rights reserved

ROTCH

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

APR 1 6 2002

LIBRARIES

The author hereby grants to MIT permission to reproduce and to distribute publicly paper and electronic copies of this thesis document in whole or in part.

Signature of Author.....
Department of Architecture
January 11, 2002

Certified by..

Mark Jarzombek
Associate Professor of History and Architecture
Thesis Supervisor

Stanford Anderson
Professor of History and Architecture
Thesis Supervisor

Accepted by.....
Stanford Anderson
Chairman, Department Committee on Graduate Students

Thesis Readers

Stanford Anderson
Professor of History and Architecture
Massachusetts Institute of Technology

Mark Jarzombek
Associate Professor of History and Architecture
Massachusetts Institute of Technology

Leo Marx
Senior Lecturer and William R. Kenan Professor of American Cultural History (Emeritus)
Science, Technology, and Society
Massachusetts Institute of Technology

The Aviator's (Re)Vision of the World:
An Aesthetics of Ascension in Norman Bel Geddes's Futurama

by

Adnan Morshed

Submitted to the Department of Architecture on
January 11, 2002 in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy in the
Field of Architecture: History and Theory of Architecture

Abstract

This dissertation considers a new ontology of vision brought on by the advent of human flight. It focuses on the project that best reflects this new vision: the Futurama, an exhibit designed by the American industrial designer Norman Bel Geddes for the 1939 New York World's Fair. The Futurama's status as the *cause célèbre* of the 1939 World's Fair derived largely from its theatrical technique of *seeing*: spectators literally gazed down upon an American utopia as if they were aviators in a low-flying airplane. My analysis contextualizes Bel Geddes's Futurama within a utopian vision prevalent among urbanists, architects, artists, novelists, and science-fiction writers during the 1920s and 1930s. This "golden age" of American aviation was marked by the fantasy that the vision of the world from above would usher in new spatial dynamics from which would emerge the city of the future. I argue that Bel Geddes's method of seeing the Futurama from a simulated airplane revealed as much about a culturally valorized aviator hero as it did about the utopia itself.

By demonstrating how the Futurama spectator's aerial viewing became enmeshed in broader 20th-century modernist visuality, my study reveals the crucial presence of an aesthetics of ascension in the avant-garde imagination. The Futurama was one of those modernist utopias that ideologues like Nietzsche, Wells, and arch-modernist Le Corbusier visualized through the eyes of an ascending protagonist. Histories of modernism have often overlooked the exalted presence of this protagonist in favor of focusing on the aesthetic object itself. This protagonist's aesthetic experience of altitude appealed to the encyclopedic ambition of modernist planners, particularly in light of modernism's prescriptions of rationality, clarity, and order as a panacea for human problems. The Futurama's aesthetics of ascension offers a new context for understanding interwar modernism's redemptive aspirations. On one hand, an innocent self-assurance tinged the Futurama and the grand (re)vision of America that it promised to its spectators. On the other hand, the Futurama was a crucial cultural artifact that revealed a surprising affiliation between aviation and modernism's logic of looking at the world. The self-aggrandizing, detached gaze of the modernist planner masquerading as the Futurama's spectator worked to dispel the anxieties of the 1930s; at the same time, this gaze also rendered most effective the fantasy of an ideal world of tomorrow. The heightened expectations that underpinned the Futurama's heroic gaze offered a populist analogue to modernist promises of cultural renewal.

Thesis Supervisor: Stanford Anderson
Title: Professor of History and Architecture

Thesis Supervisor: Mark Jarzombek
Title: Associate Professor of History and Architecture

Acknowledgments

I am convinced that to sustain a love affair with a dissertation for years one must have—alongside unflinching devotion to it—a supportive, encouraging, and appreciative thesis committee. I was truly fortunate to have one. I viewed my dissertation as an intellectual odyssey. My advisors, Professors Stanford Anderson, Leo Marx, and Mark Jarzombek, provided me with all the theoretical, historical, and methodological tools to trek along its path with enthusiasm and courage.

Throughout my MIT life, Stan has been a constant source of inspiration. I greatly appreciate his interest, involved guidance, encouragement, and alertness to subtle issues that I would otherwise have missed. Stan's discerning critical suggestions sharpened my skills of inquiring into historical materials and artifacts. It would be impossible to suggest all the ways in which I have been enriched and benefited by Leo's probing suggestions and intellectual guidance. Leo's indispensable advice, support, and cooperation encouraged me immeasurably. My project's proximity to his own work both challenged and helped me to chart new conceptual territories. Leo has been exceedingly gracious in listening to my ideas and offering most insightful observations on them. Mark's counsel, support, and friendship were invaluable to me during not only the dissertation phase, but also my whole time as a doctoral student at MIT. Nothing I can say would be enough to do justice to his guidance on all fronts and his extraordinary ability to inspire. Mark has always been there whenever I needed him—in times of frustrating intellectual blindness opening my eyes to new possibilities, of personal loss to boost my morale, and of simple needs to talk about various issues.

Professor Sibel Bozdogan has been instrumental in guiding me to look at the airplane as a sign of modernity. I have incurred a great debt to Sibel for her most sincere encouragement and critical intellectual guidance during the various stages of my MIT life. I owe my sincerest thanks to Professor Gail Fenske for her most useful contributions to the development of my argument. Her critical observations on early twentieth-century American visual culture helped me to see the 1930s from multiple angles. For their guidance and suggestions at various stages of my doctoral research, I wish to express my gratitude to Professors Francesco Passanti, Jorge Liernur, David Friedman, Nasser Rabbat, Akos Moravansky, and James Ackerman. I would also like to express my sincere gratitude to Professor Shamsul Wares at Bangladesh University of Engineering and Technology for first inspiring in me an interest in modernist aesthetics.

The Wyeth Fellowship from the Center for Advanced Study in the Visual Arts (CASVA) in Washington, D.C. and the Wolfsonian Fellowship from the Wolfsonian-Florida International University allowed me to complete my dissertation. I owe special thanks to the C. C. Royal Fellowship from MIT and the John Coolidge Student Fellowship from the New England Society of Architectural Historians for providing me financial means to sustain my dissertation research. I greatly appreciate the privileges and courtesies extended to me by several archives, among them: the Norman Bel Geddes Collection of the Harry Ransom Humanities Research Center at the University of Texas at Austin; the archives at the National Museum of American History and the

National Air and Space Museum in Washington D.C.; the Manuscripts and Archives Division of the New York Public Library; and the archive at the Museum of Modern Art. Ms. Esther Mes at the Norman Bel Geddes Collection provided me with the most valuable assistance in locating various files on Norman Bel Geddes's work.

It is a great pleasure to mention my friends who in various capacities encouraged me to endure the travails of dissertation-writing: Carla Keyvanian, Jaspal Singh, John Christ, Nurul Symoom, Shahiduzzaman Shamim, Murshed Anam, Belinda Cowden, Tarek Shahriar, Scott Schiamberg, Jeff Leiter, Florian Stocker, Arifur Rahman, Zeynep Celik, Kirsten Weiss, Jorge Otero-Pailos, Janna Israel, and Anselmo Brum. The collegiate as well as friendly atmosphere of the HTC hub, "the Kennel," in the Architecture Department at MIT flourished with the presence of Zeynep, Kirsten, Jorge, Ijlal Muzaffar, and Janna. I thank Zeynep, Kirsten, and Jorge for their personal interest in my topic and the many stimulating discussions that helped me to articulate my ideas. I owe special thanks to the two scholars whom I met at the Annual Conference of the Society of Architectural Historians in Toronto—Eric Jenkins and Taisto Makela—for their interest in, and engaging discussions about, my dissertation topic. I have frequently benefited from the useful editorial suggestions of Urmila Seshagiri, Bob Irwin, Pamela Siska, and Betsy Fox. I would also like to thank Kate and Oliver, the librarians at Rotch, for their frequent friendly chats and encouragement.

I owe my deepest gratitude to my family for sustaining me through the agonizing period of research and writing. My sisters and brothers have been relentlessly selfless in supporting me with their unflagging interest and confidence in me. An unflinching supporter of intellectual pursuit, my mother has been a great source of inspiration. My wife, Sadia Ahmed, has largely been responsible for maintaining my sanity through years of emotional and intellectual turbulence not only with love but also with undeserved confidence in me. During the final stage of my dissertation, my beloved father passed away, leaving an emotional scar impossible to heal. It was my father whose thirst for knowledge has always guided and inspired me to pursue the path of higher learning. It is to him that I dedicate this thesis with love and respect.

Table of Contents

Acknowledgements
List of Illustrations

Chapter One: Introduction 11

1.1 Introduction 12
1.2 Seeing the Future: The Futurama 20
1.3 Ascension as an Avant-garde Theme 27
1.4 From the Street to the Sky: The Aviator as an Aerialized *Flâneur* 35

Chapter Two: Of *Aeronitis*: An American Romance with the "Airplane Eye" 63

2.1 The Emergence of Aerial Photography and Associated Questions of Panopticality, Anamnesis, and Modernist Imagination 64

Chapter Three: Exploring a Philosophy of Ascension: Friedrich Nietzsche, H. G. Wells, and Le Corbusier 91

3.1 "We Aeronauts of the Intellect": Nietzsche's Winged Oneirism 94
3.2 The Flying Man as the Observer-Narrator-Visionary Hero in H. G. Wells's Novels 105
3.3 The Politics of *la loi du Méandre*: Le Corbusier in South America 122

Chapter Four: An Ornithological Reinterpretation of Architecture: Norman Bel Geddes's Air Liner Number Four, the Aerial Restaurant, and the City of Tomorrow 141

Chapter Five: Constructing a Spectatorial Psychology: A *Voyage extraordinaire* in Norman Bel Geddes's Futurama. 164

5.1 Future-Gazing at the 1939 New York World's Fair 165
5.2 "All Eyes to the Future": The Futurama's *Voyage extraordinaire* 172
5.3 Considering a Modernist Subject in the Futurama 180

Conclusion 197
Illustrations 205
Bibliography 279

List of Illustrations:

Chapter One:
Fig. 1: "Cities of Tomorrow," *Amazing Stories* (1939).
Fig. 2: Spectators and the Futurama model, reprinted in *Rassegna* (60): 55.
Fig. 3: The airplane over the Futurama model, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.
Fig. 4: The conveyor belt cross-section, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.
Fig. 5: Spectators over the Futurama model, reprinted in *Rassegna* (60): 61.
Fig. 6: Axonometric of the General Motors Building, reprinted in Donald J.Bush, *The Streamlined Decade* (New York: George Brazilier, 1975): 160.
Fig. 7: An aerial view of the Futurama, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.
Fig. 8: "The Flying Man"*Amazing Stories,* reprinted in Joseph Corn and Brian Horrigan, *Yesterday's Tomorrow: Past Vision of the American Future* (New York: Summit Books, 1984):9.
Fig. 9: An advertisement of Vultee Aircraft, Inc., *Fortune* (1942).
Fig. 10: Superman, reprinted in Les Daniels, *The Complete History: The Life and Times of the Man of Steel* (San Francisco: Chronicle Books, 1998): 111.
Fig. 11: Manhattan as an aerial spectacle, reprinted in Robert Cameron, *Above New York* (San Francisco: Cameron and Company, 1988).
Fig. 12: "From a plane it was possible at last to see," aerial view of Manhattan, reprinted in John A. Kouwenhoven, *The Columbia Historical Portrait of New York: An Essay in Graphic History* (New York: Harper & Row, Publishers, 1972): 506.
Fig. 13: Airplane/Manhattan in Harry Guggenheim, *Seven Skies* (New York: G. P. Putnam's Sons, 1930): 36.
Fig. 14: Hugh Ferriss, *Metropolis*, reprinted in Jean Ferriss Leich, *Architectural Visions: The Drawings of Hugh Ferriss* (New York: Whitney Library of Design, 1980).
Fig. 15: Harvey Wiley Corbett, New York traffic, reprinted in Rem Koolhaas, *Delirious New York, A Retroactive Manifesto for Manhattan* (New York: The Monacelli Press, 1994): 124.
Fig. 16: "King's Dream of New York," reprinted in Moses King, ed., *King's Views of New York 1886-1915* (New York: Arno, 1974): 1.
Fig. 17: Fritz Lang, *Metropolis* (1926), reprinted in Les Daniels, *The Complete History: The Life and Times of the Man of Steel* (San Francisco: Chronicle Books, 1998): 27.

Chapter Two:
Fig. 18: The aerial camera as a weapon, reprinted in Paul Virilio, *War and Cinema: The Logistics of Perception*, trans., Patrick Camiller (London and New York: Verso, 1989).
Fig. 19: H. G. Wells, *The War in the Air* (1908), reprinted in Three Science Fiction Novels (New York: Dover Publications, Inc., 1963).
Fig. 20: Fairchild Aerial Camera, reprinted in Fairchild, Sherman, "Aerial Photography, Its Development and Future," *American Academy of Political and Social Science, Aviation,* vol. 131 (May, 1927).

Fig. 21: An "airscape" of Manhattan, *Aerial Age Weekly* (1920).
Fig. 22: Brooklyn and Manhattan Bridges, and the Statue of Liberty in *Flying* (October 1916).
Fig. 23: The US Capitol, *Aerial Age* (1923): 5.
Fig. 24: *Arc de Triomphe, Aerial Age* (1923).
Fig. 25: "The old man," László Moholy-Nagy, *The New Vision* (New York: George Wittenborn, Inc., 1947 [1928]): 26.
Fig. 26: Pompeii, *Flying* (1914).
Fig. 27: *Airplane Flying*, 1915, Kasimir Malevich, reprinted in Kazimir Malevich 1878-1935 (The Armand Hammer Museum of Art and Cultural Center, 1990): 73..
Fig. 28: Collage, Kasimir Malevich, reprinted John Elderfield, Peter Reed, Mary Chan, and Maria Del Carmen Gonzalez, eds., *Modern*starts, *People, Places, Things* (New York: The Museum of New York, 2000): 256.
Fig. 29: Typical aerial photographs, reprinted in E. A. Gutkind, "Our World from the Air: Conflict and Adaptation," *Man's Role in Changing the Face of the Earth,* ed., W. L. Thomas (Chicago: Chicago University Press, 1956): 17.

Chapter Three:
Fig. 30: H. G. Wells, *The War in Air* (1908), reprinted in *Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963): 46.
Fig. 31: H. G. Wells, *When the Sleeper Wakes* (1899), Conrads, Ulrich, and Sperlich, Hans G. *The Architecture of Fantasy* (New York: Praeger, 1962): 91.
Fig. 32: H. G. Wells, Aerial bombardment of New York, *The War in Air* (1908) reprinted in *Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963): 133.
Fig. 33: Le Corbusier, Sketch for Rio de Janeiro (1929), reprinted Le Corbusier, *Aircraft* (New York: The Studio Publications Inc., 1935): 111-113.
Fig. 34: Le Corbusier, The Plan Obus (1931), reprinted in Le Corbusier, *The Radiant City* (New York: The Orion Press, 1964; first published in 1933 in France under the title of *La Ville Radieuse*): 236.
Fig. 35: Le Corbusier, The World City (1929), reprinted in Le Corbusier, *The Radiant City*: 220.
Fig. 36: Le Corbusier, The Plan Obus (1931), elevation, reprinted in Le Corbusier, *The Radiant City*: 247.

Chapter Four:
Fig. 37: Le Corbusier's double gaze in *Towards a New Architecture* (New York: Dover Publications, Inc. [1927]): 121.
Fig. 38: Le Corbusier, Airplane/Manhattan, *Aircraft* (New York: Universe Books, 1988 [1935]), backcover.
Fig. 39: Norman Bel Geddes, Rose Window and the airplane motor, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 276-77.
Fig. 40: Raymond Loewy, the "Evolution Chart of Design—1930," in *Industrial Design, Raymond Loewy* (New York: The Overlook Press, 1979): 75-76.

Fig. 41: Norman Bel Geddes, The Air Liner No. 4, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 110, 115.
Fig. 42: Norman Bel Geddes, "the principle of streamlined," in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 45.
Fig. 43: Norman Bel Geddes, The Air Liner No. 4, details, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 114, 115.
Fig. 44: The fantastic island of Laputa in *Gulliver's Travels* (1726), reprinted in David Kyle, *Pictorial History of Science Fiction* (London: Hamlyn, 1976): 16.
Fig. 45: Norman Bel Geddes, *Aerial* Restaurant, 1929, Norman Bel Geddes Collection (File 169), Humanities Research Center at UT Texas, Austin.
Fig. 46: Buckminster Fuller, "Zeppelin Delivery of 4-D Houses," (1927), reprinted in Bell Upton, *Architecture in the United States* (Oxford: Oxford University Press, 1998): 179.
Fig. 47: Hugo Gernsback, "a city 10,000 years hence" *Science and Invention*, (February, 1922), reprinted in David Kyle, *Pictorial History of Science Fiction* (London: Hamlyn, 1976): 55.
Fig. 48: "City in the Air," *Air Wonder Stories* (1929).
Fig. 49: The Aerial Restaurant on the cover of *Popular Mechanics* (July 1930).
Fig. 50: Norman Bel Geddes, City of Tomorrow (1936), Shell Oil Company, reprinted in Jeffrey Meikle, The City of Tomorrow: Model 1937: 18.
Fig. 51: Norman Bel Geddes, City of Tomorrow, aerial shooting, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 24.
Fig. 52: Norman Bel Geddes, City of Tomorrow, aerial shooting, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 26.
Fig. 53: Norman Bel Geddes, City of Tomorrow, aerial view, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 14.
Fig. 54: Norman Bel Geddes, "chess player," reprinted in Meikle, Jeffrey L. *Twentieth Century Limited: Industrial Design im America, 1925-1939* (Philadelphia: Temple University Press, 1979): 208.

Chapter Five:
Fig. 55: Carl Milles, *The Astronomer*, 1939 New York World's Fair, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 4.
Fig. 56: George Washington and the Perisphere, 1939 New York World's Fair, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 81.
Fig. 57: Henry Dreyfuss, *Democracity*, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 3.
Fig. 58: The Helicline in the Theme Center, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 2.
Fig. 59: The bird's-eye view of the 1939 World's Fair complex, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): vi.

Fig. 60: The Aviation Building, 1939 New York World's Fair, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 35.
Fig. 61: Rocketport, Focal Exhibit, 1939 New York World's Fair, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 9.
Fig. 62: The 1939 Fair President Grover Whalen celebrating Howard Hughes's round-the-world flight, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 2.
Fig. 63: Aerial view of the General Motors Building, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 19.
Fig. 64: Aerial shots of the Futurama, *The World of Tomorrow*, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair* (New York: Main Street Press, 1988): 109.
Fig. 65: Aerial shots of the Futurama, *The World of Tomorrow*, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair*. (New York: Main Street Press, 1988): 110.
Fig. 66: Aerial view of the Futurama intersection, General Motors Building, reprinted in *Rassegna* (60): 58.
Fig. 67: Airplane superimposed on the Futurama photograph, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.
Fig. 68: Emanuel Leutze, *Westward the Course of Empire Takes Its Way* (1861); reprinted in Albert Boime, *The Magisterial Gaze: Manifest Destiny and American Landscape Painting c. 1830-1865* (Washington and London: Smithsonian Institution Press, 1991): 85.
Fig. 69: Hugh Ferriss, *The Metropolis of Tomorrow* (Princeton: Princeton Architectural Press, 1986 [1929]): 65.
Fig. 70: Edward Bellamy, the cover of *Looking Backward* (1926 edition).
Fig. 71: Le Corbusier's hand over the *Ville Contemporaine*, reprinted in Howard Mansfield, *Cosmopolis, Yesterday's Cities of the Future* (New Jersey: The Center for Urban Policy Research, 1990): vii.
Fig. 72: Superman in the 1939 New York World's Fair poster, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair*. (New York: Main Street Press, 1988): 226.
Fig. 73: Norman Bel Geddes replaced the heads of the Futurama's "ordinary" spectators with those of the real power brokers of the New York political scene; archive/National Museum of American History in Washington, D.C.

Chapter One:

Introduction

1.1 Introduction
1.2 Seeing the Future: The Futurama
1.3 Ascension as an Avant-garde Theme
1.4 From the Street to the Sky: The Aviator as an Aerialized *Flâneur*

1.1 Introduction:

> He who will one day teach men to fly will have moved all boundary-stones; all boundary-stones will themselves fly into the air to him, he will baptize the earth anew - as 'the weightless.'
>
> Friedrich Nietzsche[1]

Nietzsche's aphoristic pronouncement from the 1880s foreshadowed the utopianism that was to come with the advent of powered human flight in the early 20th century.[2] Although wholly allegorical, the Nietzschean prophet Zarathustra's preaching of the conquest of gravity and earthly weightiness -- the two metaphors Nietzsche recurrently used to signify what he thought to be the subservient morality of earthbound humankind -- offers a useful insight into an aesthetic of ascension prevalent among the visionary aesthetes and urbanists of the interwar era. Seeking to impose a physical order on chaotic late 19th-century industrial cities as well as to change the traditional spatial practices of city building, many American and European urban planners believed, with

---

[1] Friedrich Nietzsche, *Thus Spoke Zarathustra*, trans., R. J. Hollingdale (New York: Penguin Books, 1961; originally published 1885), p. 210.

[2] Nietzsche's influence on aviation-minded avant-garde poets, novelists, artists, and architects, such as D'Annunzio, Marinetti, Apollinaire, Wells, Proust, Malevich, and Le Corbusier, has been well documented by Felix Philip Ingold, *Literatur und Aviatik, Europ?ische Flugdichtung 1909-1927, Mit einen Exkurs Ùber die Flugidee in der modernen Malerei und Architektur* (Birkhauser Verlag Basel: 1978). Also see Fritz Neumeyer, "Nietzsche and Modern Architecture" and Jean-Louis Cohen, "Le Corbusier's Nietzschean Metaphors," in Alexandre Kostka and Irving Wohlfarth, eds., *Nietzsche and "An Architecture of Our Minds"* (Los Angeles: The Getty Research Institute for the History of Art and the Humanities, 1999).

exaggerated passion, that human ascension and its associated (re)visions of the world would usher in new spatial dynamics that would bring about the city of the future (**Fig. 1**).

In the context of such optimism inspired by technology, the airplane became the trope *par excellence* of the 20th-century's new consciousness of speed, space, and modernity and, most importantly, as an optical instrument enabling what were thought to be new modes of seeing objects and the world.[3] Avant-garde movements, such as Futurism, Cubism, Constructivism, and Suprematism, developed concurrently with aviation. Art historians and cultural historians of aviation alike have suggested that the new modes of seeing made possible by human flight influenced these movements seeking to transcend the established boundaries of vision and aesthetics.[4]

---

[3] In the early days of aviation, the airplane became synonymous with a privileged gaze from above. Although today we view the airplane primarily as a means for public or military transportation, the popular passion for early aviation revolved around seeing the world from a high vantage point as well as taking a joyride. See, for instance, Paul Virilio, *War and Cinema* (London and New York: Verso, 1989, first pub. 1984) p. 17; Robert Wohl, *A Passion for Wings, Aviation and the Western Imagination 1908 -1918* (New Haven and London: Yale University Press, 1994), p. 255.

[4] For the Futurists, the new visual field opened up by ascension supplied the possibilities for *l'immaginazione senza fili* (*imagination without strings*) and radical program for renewal. See R. W. Flint, ed., *Marinetti: Selected Writings* (London: Secker & Warburg, 1971), p. 88. The art critic Gertrude Stein speculated that the Cubists' breakup of the "old ways" of seeing was suggested by the aerial vision; Gertrude Stein, *Picasso, The Complete Writings* (Boston: Beacon Press, 1970). For a general discussion of aviation's impact on avant-garde movements, see Wohl, *A Passion for Wings;* Stephen Kern, *The Culture of Time and Space 1880-1918* (Cambridge: Harvard University Press, 1983); and John Elderfield, Peter Reed, Mary Chan, and Maria Del Carmen Gonzalez, eds., *Modern*starts, *People, Places, Things*. (New York: The Museum of New York, 2000), p. 253-57.

The aviator's "God's-eye" view, as it was frequently called in aviation magazines and avant-garde literature, offered the possibility of seeing a hitherto "unseen" world. In his book, *Aircraft* (1935), Le Corbusier encapsulated this spectatorial psychology:

> ...to-day it is the question of the airplane eye, of the mind with which the Bird's Eye View has endowed us; of that eye which now looks with alarm at the places where we live...The airplane eye reveals a spectacle of collapse...it is as an architect and town-planner -- and therefore as a man essentially occupied with the welfare of his species -- that I let myself carried off on the wings of an airplane...By means of the airplane, we now have proof, recorded on the photographic plate, of the rightness of our desire to alter methods of architecture and town-planning.[5]

Although World War II's destruction diminished faith in technology, a pervasive sense of omnipotence associated with aerial viewing influenced the interwar culture of envisioning utopias. The "airplane eye," as Le Corbusier puts it, had far-reaching consequences for our understanding of architecture as an earthbound building practice.

The airplane view signified a perceptual shift in vision that tilted the concept of architecture out of its age-old gravitational stability. This shift, in turn, influenced the works and writings of urbanists, architects, artists, novelists, and science fiction writers during the interwar era. As early as 1909, when the French aviator Louis Blériot flew across the English Channel in a monoplane, the

---

[5] Le Corbusier, *Aircraft* (French title "L'avion accuse") (London: The Studio Publications Inc., 1935), p. 11.

art historian Heinrich Wölfflin's student Fritz Wichert cogently captured the relationship between the experience of flight and spatial perception:

> ...the idea that we can fly has given many people occasion to imagine the consequences of the new discovery...The fetters of gravity are loosening. This fact promises to bring about a formal revolution in our architectural ideas...the roof of a house gains a totally new significance. We see it from a new angle, and it achieves the importance of a facade. Roofs become facades...The consequence of this radical change will be that our gravitational architecture, with its cornices, turrets, and roofline features, will seem absolutely senseless...Architecture will then finally take up an absolutely contradictory position to all natural growths, in that the last analogy of roots in the earth and organic development will collapse into nothingness.[6]

While in hindsight it may seem like avant-garde hyperbole, Wichert's statement typified the utopian sentiment that colored much of the visionary cultural production after the First World War when the airplane came of age and became a ubiquitous symbol of modernist and popular culture. Wichert summarized the extraordinary hopes the avant-garde invested in the new viewing angle for a quintessentially 20th-century experience of art, architecture, and, eventually, modernity itself.

H. G. Wells, Robert Delaunay, El Lissitzky, Le Corbusier, Lazlo Moholy-Nagy, Kasimir Malevich, and Hugh Ferriss, among many others, identified aerial viewing as part of the new modernist logic of seeing. Le Corbusier's *Aircraft*

---

[6] Fritz Wichert, "Airship Travel and Architecture," in *Frankfurter Zeitung*, 21 March 1909; republished in *Industriekultur, Peter Behrens and the AEG, 1907-1914* , by Tilmann Buddensieg, trans., Iain Boyd Whyte (Cambridge, MA: The MIT Press, 1984; originally published under the title *Industriekultur und die AEG, 1907-1914* [Gebr. Mann Verlag, Berlin 1979]).

(1935) in fact was the first volume of a series dedicated to "The New Vision," in which the next volume was entitled *World Beneath the Microscope* (1935) by W. Watson Baker. The Bauhaus pedagogue Moholy-Nagy's book of 1928 was also called "The New Vision," in which he sought both literally and semantically the possibilities of a modern conception of space through aerial viewing. Drawing on the notions of simultaneity of events and of time as the fourth dimension, Moholy-Nagy observed that "[a]irplane views are macrophotographs: 'space compressors,' an extension of observation. They reveal the large-scale relationships, as microphotographs reveal the smallest."[7] What was at stake in all these avant-garde rhetorics was a new type of "aerialized" spectatorship, and consequently, the possibility of new types of aesthetic practices.

My dissertation investigates this "new" vision as it developed in the interwar years. I focus on the project that best reflects this vision: The Futurama, an exhibit designed for the 1939 New York World's Fair. The Futurama's status as the "number one hit show" of the 1939 Fair derived largely from its theatrical technique of seeing: spectators literally gazed down upon an American utopia.[8]

---

[7] Lazlo Moholy-Nagy, *The New Vision and Abstract of an Artist* (New York: George Wittenborn, Inc., 1928), p. 26.

[8] According to a poll conducted by George Gallup's American Institute of Public Opinion in April/May 1939, the Futurama's popularity far outranked all other exhibits of the Fair. Media response to the Futurama was unanimous in calling it the "number one hit show" of the Fair. Among the forty-five million visitors to the 1939 New York World's Fair over its two seasons, twenty-five million had seen the Futurama. The mile-long queue, slowly climbing the ramp to

The Futurama's designer, the American industrial designer Norman Bel Geddes (1893-1958), is the major figure in my dissertation. He was a pioneer in the new three-dimensional stagecraft design during the 1920s and in the aesthetic development of "streamlining," which is still today visually most identified as one of the symbols of 1930s America.

My dissertation repositions not only Bel Geddes's work, but, more generally, our understanding of the interwar aesthetics as one in which the phenomenon that could be called "aeriality" and its associated revisions of perception, geography, and even morality played a central role. By aeriality, I suggest the formation of a new kind of visual field—a different one from that of an earthbound spectator—in which new types of subject-object relationship become possible. Further, aeriality proposes conditions in which the observing subject reconstitutes itself through a corresponding change in spectatorial scope. In other words, aeriality denotes a type of embodied visual practice that inspires simultaneous reconfiguration of vision and the reconstruction of subjectivity. Drawing on the classic Marxist doctrine that capitalist production created an object for the subject on one hand, a subject for the object on the other, Wolfgang Schivelbusch in his *The Railway Journey* argued that 19th-century train travel

---

the General Motors Building, which housed the Futurama, became part of the Fair iconography (General Motors press release, May 30, 1939).

created its own industrial subject.[9] Expanding this line of reasoning, I ask whether human ascension by means of the airplane constructs a 20th-century subject. Conversely, does an analysis of this observing subject reveal the complexities of an ascensional field of vision within which aesthetic phenomena are formally structured?

My inquiry draws on the works of various theoreticians of vision: from Henri Bergson, Roland Barthes, Michel Foucault, Michel de Certeau to Wolfgang Schivelbusch, and to more recent scholars such as Jonathan Crary, Martin Jay, and John Schumacher.[10] These authors variously seek to dislodge vision from its Cartesian stronghold. They attempt to show vision in its socially and culturally constructed domain. More importantly, they undermine the idea of an atemporal, rationalizing subject ensconced in the linear and normative model of technological progression. Following this line of thought, I question the idea that

---

[9] Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* (Berkeley: The University of California Press, 1986).

[10] Henri Bergson, *Matter and Memory* (originally published in 1896), trans., W. S. Palmer and N. M. Paul (New York: Zone Books, 1991); Jacques Lacan, *The Four Fundamental Concepts of Psycho-Analysis*, trans., Alan Sheridan (New York: Norton, 1978) and *Ecrits: A Selection*, trans. Alan Sheridan (New York: Norton, 1977); Roland Barthes, *The Eiffel Tower and Other Mythologies*, trans., Richard Howard (Berkeley: University of California Press, 1979); Michel Foucault, *The Order of Things* (New York: Pantheon, 1973) and *Discipline and Punish: The Birth of the Prison*, trans., Alan Sheridan (New York: Pantheon, 1979); Michel de Certeau, *The Practice of Everyday Life* (Berkeley: University of Berkeley Press, 1984); John Berger, *Ways of Seeing* (London: Penguin Books, 1972); Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, MA: The MIT Press, 1990); Martin Jay, *Downcast Eyes, The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1993); and John A Schumacher, *Human Posture: The Nature of Inquiry* (Albany: State University of New York Press, 1989).

such optical technologies as a camera or a telescope or an airplane (if considered a vehicle enabling aerial vision) merely augment the ocular capacity of a universal and *a priori* subject. Further, forms of scientific knowledge and cultural aspirations and desires influence the observer to see through an optical apparatus in multiple and shifting ways. The observer's particular physical location within the visual field accounts for *how* one would see and create a contingent perspectival framework. Bergson, for instance, theorized the formation of modern subjectivity by bringing to play the notion of the "lived body." In *Matter and Memory* (1896), Bergson contends that the body's relative position to the external world shapes individual perceptions as well as determines the action of the body.[11] He further argues that the body's "lived" experience in the visual field is inseparable from subjective consciousness and emphasizes that the lived experience itself derives from the body's movement within space rather than from external stimuli. If viewing position is a form of lived experience of the body, then how does that position, with its attendant discursive contents, play out in aesthetic productions? These ideas provide a starting point for my dissertation studying vision—the very process of *seeing* itself—as a contested condition for the construction of subjectivity, the

[11] Henri Bergson, *Matter and Memory*, pp. 20-21.

production of knowledge, and social/political commentary on aesthetic phenomena.

1.2 Seeing the Future: the Futurama:

Upon completing their visit to the Futurama, spectators were presented with a souvenir pin that read: "I have seen the future." Although apparently just a memento in keeping with the theme of the 1939 Fair, "Building the World of Tomorrow," the pin highlighted two important and mutually reinforcing concepts underlying this much-celebrated exhibit of the Fair. The first is the idea of the "future" as a spectacle (I use the word intentionally in a Debordian sense, i.e. how the modern mass/capitalist society functions through intense circulation and recirculation of spectacles) while the second is the very process of *seeing* that spectacle.

Bel Geddes's concept of "future" as a spectacle begs further explanation. Under the corporate sponsorship of General Motors, Norman Bel Geddes presented the "future" as a gigantic 35,738-sq. ft. (nearly one acre) animated model of an American utopia as it might appear in 1960 to people in a low-flying airplane (**Figs. 2 & 3**).[12] Bel Geddes's exhibit translated the future into a grand

[12] A caption for the Futurama press release described the spectacle thus: "[Norman Bel Geddes's] conception of an excursion into the future may be termed a preview of the United States twenty years since. It is a spectacle that unfolds a new kind of civilization in which industry, finance and labor will all find greater employment - a vision of new frontiers of progress waiting to be

spectacle in which an ecological package of "abundant sunshine, fresh air, and green parkways" seamlessly blended with a massive traffic infrastructure, streamlined skyscrapers and futuristic airports. Fusing the Taylorist logic of Le Corbusier's *Ville Contemporaine* and the decentralist ideology of Wright's *Broadacre City* with a Wellsian aura of "Things to Come," the Futurama aspired to be a culmination of early 20th-century urbanist thinking. Bel Geddes presented the future with a remarkable degree of realism and immediacy, striking a favorable chord with an American audience slowly recovering from a decade of economic recession. In tune with the era's gung ho sentimentality, Bel Geddes's "future" was of course synonymous with technological progress.[13] For Bel Geddes, the idea of the future could translate into emerging (and fanciful) technological artifacts. The Futurama included an assortment of such technologies: remote-controlled multi-lane highways, power plants, farms for

---

conquered by those who will pioneer around the corner of tomorrow." See Norman Bel Geddes Papers, File 381.48 in the Harry Ransom Humanities Research Center, The University of Texas at Austin.

[13] Literature dealing with early 20th-century America's faith in the future, progress, and technology is vast. See, for instance, Charles A. Beard, *The Rise of American Civilization* (1928), p. 831. Writing in 1928 about the idea of progress in contemporary American society, Beard stressed that "mankind, by making use of science and invention can progressively emancipate itself from plagues, famines, social disasters, and subjugate the material forces of the good life." Also see, Charles A. Beard, ed., *A Century of Progress* (New York: Harper & Brothers Publishers, 1933); I. F. Clark, *The Pattern of Expectation* 1644-2001 (New York: Basic Books, Inc., 1979), pp. 1-12; Sheldon Cheney and Martha Candler Cheney, *Art and the Machine, An Account of Industrial Design in 20th-century America* (New York: McGraw-Hill Book Co. Inc., 1936); Joseph J. Corn, ed. *Imagining Tomorrow: History, Technology, and the American Future* (Cambridge: The MIT Press, 1986); Stuart Chase, *Men and Machines* (New York: The MacMillan Co., 1929); and Thomas Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm 1870-1970* (New York: Viking, 1989).

genetically engineered crops, rooftop platforms for flying machines and autogyros, and various gadgetries, all of which were aimed at improving life and reforming society.

Yet it was not the spectacle of the future itself, but the very technology of *seeing* the future that made the Futurama the prime attraction of the fair, drawing a staggering 28,000 spectators a day. Carried above the model by means of a suspended, winding conveyor belt simulating the experience of flight, spectators attained a bird's-eye view of the model (**Figs. 4 & 5**). The eighteen-minute ride -- along with a masterful manipulation of light, sound, and color -- created the illusion of an aerial journey over the varying and meticulously crafted terrain of the American continent. The conveyor system was huge. It carried 552 seated spectators and covered a third-of-a-mile winding path over the model at different heights (**Fig. 6**). As the conveyor system moved at a rate of approximately 120 feet per minute, the spectators' view was directed through a curved and continuous pane of glass toward the model which consisted of 408 topographical sections prepared with the help of actual aerial photography of different regions of the US.[14] Changing altitudes allowed close-up views of

---

[14] Norman Bel Geddes Papers, File 381.42. Instructed by Norman Bel Geddes, Fairchild Aerial Surveys, Inc. of New York shot 119 aerial photographs in different parts of the U.S. The many subjects that were photographed from the airplane included Central Park and Mid-Manhattan in New York, Jersey City in New Jersey, Mount Wilson in Illinois, Yosemite Valley in California, and St. Louis in Missouri. Bel Geddes even contacted Eddie Rickenbacker, a well-known World War I Pilot, to fly members of Bel Geddes's office over Eastern states so that they could see

experimental farms, dams and power plants, university campuses, multilevel suspension bridges, and highways filled with aerodynamic cars (**Fig. 7**). The General Motors exhibition brochure described the experience thus:

> Come tour the future with GM! A Transcontinental flight over America in 1960. What will we see? What changes will transpire? This magic Aladdin-like flight through time and space is Norman Bel Geddes's conception of the many wonders that may develop in the not-too-distant future.[15]

Not only did Bel Geddes's novel theatrical technique of aerial viewing enthrall the visitors to the Futurama; it also suggested an *active* spectatorship, implicitly manifested in the triumphant pronouncement of the pin: "I have seen the future." The heroic undertone of the pronouncement underscores the very process of seeing by the "I" (the spectator of the Futurama) as much as it draws our attention to the spectacle of the future. In other words, *how* the future was seen became as appealing as, or perhaps more appealing than, *what* was seen in the future.

The emphasis on the display process rather than the exhibit was a trend-setting innovation of the 1939 New York World's Fair. As the cultural historian Warren Susman noted, "The real genius of the exhibitors at the Fair...was their understanding that the machine itself was not to be central, as it traditionally had

---

exactly how certain features appeared and what level of detail was visible from an airplane. Also see Marchand, Roland. "The Designers Go the Fair II: Norman Bel Geddes, The General Motor's "Futurama," and the Visit to the Factory Transformed." *Design Issues* 8 (Spring 1992): 23-40.

been in all world's fairs since 1851 and the Crystal Palace. Rather, they realized that in a consumer-centered society people ended up more fascinated with process [of production] than with machines."[16] In the late 1930s, many corporations realized that the way to draw public attention to their products profitably was to put their factories on display through dioramas, models, and actual working exhibits of segments of their production processes. Production-minded corporation executives assumed that public's interest and esteem could be best cultivated by showing not the finished product, but rather how efficiently the product was manufactured. Bel Geddes, on his part, went one step further. He devised a way to engage visitors experientially with General Motors' programs and products -- not so much by urging them to witness the laborious processes of production, but rather by offering them a chance to participate in the corporation's broader vision for the future.

The Futurama's significance lay not only in its theatrical display of the process of producing an idealized future; but, more importantly, in its *creation* of a type of spectator in the most ideal sense of the concept. As I will show, Bel Geddes's adoption of the method of seeing the model from above revealed as much about an interwar cultural protagonist -- the aviator, the heroic overseer of

---

[15] Norman Bel Geddes Papers, File 381.19e, Folder 51.

[16] Warren Susman, "The People's Fair: Cultural Contradictions of a Consumer Society," in *Dawn of a New Day, The New York World's Fair, 1939/40,* ed. Helen Harrison, The Queens Museum: The New York University Press, 1980, p. 22.

the world -- as it did about the "world of tomorrow" itself. I argue that Bel Geddes's method of aerial viewing was, for him, a conceptual tool for displaying a *total* utopia. I develop the idea that the Futurama's aerial perspective and the highly moralized aviating citizen were the most crucial components of Bel Geddes's futurism. The Futurama inquires into the nature of seeing and, eventually, of spatial perception, within a host of issues -- geographical, technological, and even moralistic -- stemming from the phenomenon of ascension. Far from being the stunt of an industrial designer/planner bent on attracting visitors, the Futurama exemplified a broader cultural and scientific interest in the consequences of flight and the airplane, which colored avant-garde thought and rhetoric during the 1920s and 1930s, a period known as the "golden age" of American aviation.[17]

Bel Geddes's intellectual growth was concurrent with this golden age. His interest in aviation was demonstrated by his experimental airplane designs, alongside the design for streamlined automobiles, throughout the 1930s as well as by the presence of a large number of aviation and aerial survey books in his personal library.[18] Bel Geddes's fascination with aeronautics began around 1927, when he abandoned a career in theater design in favor of industrial design and

---

[17] William M. Leary, ed., *Aviation's Golden Age, Portraits from the 1920s and 1930s* (Iowa City: University of Iowa Press, 1989), p. 127.

[18] Books from NBG library

architecture. His aerodynamic designs for automobiles, ocean liners, and airplanes became indispensable emblems of the 1930s, popularly known as the "streamlined decade."[19] Documented in his book *Horizon* (1932), Bel Geddes's experimental airplane and futuristic airport designs, in collaboration with the German aeronautical engineer Otto Koller, demonstrate the close relationship between city design and contemporary science fiction. Bel Geddes was convinced that individual airplanes, dirigibles and autogyros would soon become household commodities, landing and taking off vertically from the rooftops of neighborhood houses, thus changing the organization of the house and the city. Equipped with folded wings and telescopic retractable fins, his flying car would both speed along the highway and take off from the ground when necessary, gadgetry inspired by Wellsian futurism. As in the fantastic cities of popular science fiction or of the visionary urbanists of the period, such as Le Corbusier, Hugh Ferriss and Frank Lloyd Wright, the sky of Bel Geddes's future city would swarm with aerial vessels of various kinds and sizes. In a time and cultural milieu marked by great fascination with aviation, Bel Geddes viewed the airplane as a sign of progress and the aviator as the American hero of the future.

---

[19] Donald J. Bush, *The Streamlined Decade* (New York: Brazilier, Inc., 1975).

1.3 Ascension as an Avant-garde Theme:

Although today the airplane has become commonplace, its invention in the early 20th century generated a cultural euphoria, with the aviator as a new cultural protagonist.[20] As the historian Robert Wohl noted, the aviator captured the popular imagination because he drew on a wide range of imagery, including references to:

> [C]lassical mythology and Teutonic folklore to Christian tradition, especially as it had been filtered through the minds of nineteenth-century Romantics like Shelley, Victor Hugo, and Richard Wagner. Aviators were identified by poets with a host of flying figures who had haunted (and delighted) the Western imagination for hundreds of years: with angels and archangels; with Arabian prince of A Thousand and One Nights; with Greek hero Perseus and his winged horse Pegasus; with Wagner's flying female warriors the Valkyries; with the Athenian inventor Daedalus and his son Icarus; and with Zeus's cousin Prometheus.[21]

---

[20] The literature on the cultural impacts of aviation is exhaustive. See for instance, William Fielding Ogburn, *The Social Effects of Aviation* (Boston: Houghton Mifflin, 1946); Joseph Corn, *The Winged Gospel: America's Romance with Aviation, 1900-1950* (New York: Oxford University Press, 1983); Robert Wohl, *A Passion for Wings, Aviation and the Western Imagination 1908 -1918* (New Haven and London: 1994); Stephen Kern, *The Culture of Time and Space 1880-1918* (Cambridge: Harvard University Press, 1983); Roger E. Bilstein, *Flight in America 1900-1983: From the Wrights to the Astronauts* (Baltimore: John Hopkins University Press, 1984), p. 25;
Clive Hart, *Images of Flight* (Berkeley: University of California Press, 1988); William Leary, ed. *Aviation's Golden Age, Portraits from the 1920s and 1930s* (Iowa City: University of Iowa Press, 1989); W. Lee, "The Face of the Earth as Seen from the Air." *American Geographical Society* (1922); Mary Burt, "Aeronautics Will Develop a Broader Vision" *Flying* IV (1915); Harry Guggenheim, *The Seven Skies* (New York: G.P. Putnam's Sons, 1930); Selden Rodman, ed., *The Poetry of Flight: An Anthology* (Miami: Royale House, 1941); C. R. Roseberry, *The Challenging Skies, the Colorful Story of Aviation's Most Exciting Years, 1919-1939* (New York: Garden City, 1966); Archibald Williams, *Conquering the Air, The Romance of the Development and Use of Aircraft* (New York: 1928), and Beaumont Newhall, *Airborne Camera: The World from the Air and Outer Space* (New York: 1969).

[21] Robert Wohl, *A Passion for Wings,* p. 261.

The concept of the aviator as a "new breed" of human being, endowed with a "seeing" power, was a leitmotif in literature, film, science fiction, and the arts during the interwar era (**Fig. 8**).[22] We encounter the type in the works of H. G. Wells, F. T. Marinetti, Kasimir Malevich, László Moholy-Nagy, and of course Le Corbusier, all of whom advanced their own avant-gardism by frequently incorporating various themes of ascension as a means for achieving a "new vision." The status of the aviator as a hero gained cultural validity with the American aviator Charles Lindbergh's 1927 maiden transatlantic flight, an event that provoked widespread public and media reaction on both sides of the Atlantic. Overnight, Lindbergh became a cult figure, chosen as *Time Magazine*'s first "Man of the Year" in 1927. As much as it was perceived as mankind's victory over physical barriers, Lindbergh's flight symbolized the ascendancy of the ideal American type.[23] As John Ward tells us in "The Meaning of Lindbergh's Flight,"

> Lindbergh gave the American people a glimpse of what they liked to think themselves to be at a time when they feared they had deserted their own vision of themselves...The wild medley of public acclaim and the homeric strivings of editors make one realize that the response to Lindbergh involved a mass ritual in which America celebrated itself more than it celebrated Lindbergh.[24]

---

[22] Corn, *The Winged Gospel*, p. 135.
[23] John Ward, "The Meaning of Lindbergh's Flight," in *Red, White, and Blue: Men, Books, and Ideas in American Culture* (New York: 1969), p. 26.
[24] Ibid., p.26.

Alone, indomitable, and apparently without any materialistic goal in his heroic pursuit, Lindbergh fired up the image of the archetypal hero, rising against nature's force with sheer physical power. *Survey* magazine harked back to Walt Whitman's poem "O Pioneer" for the title of an article on Lindbergh, thereby evoking the masculine image of the frontiersman in the American West.[25] Lindbergh projected the image of an ideal American hero, endowed with an immaculate physique and intense eyes, fixed, as it were, on the future.

During the 1920s and 1930s, popular magazines promulgated the masculinist image of the aviator as a cultural icon. In 1942, fifteen years after Lindbergh's transatlantic flight, an advertisement by the aircraft manufacturing company Vultee demonstrated the endurance of the Lindbergh archetype (**Fig.9**). The Vultee advertisement in the October issue of *Fortune* featured a larger-than-life image of an aviator, accompanied by unabashedly masculinist rhetoric: "The man we look up to!...in the world's every hour of crisis there rises a particular man or group of men who are placed there by destiny to defy, to fight and ultimately to defeat a common foe." The aviator in the Vultee image, who bears an uncanny facial resemblance to Lindbergh, stands tall, rendering insignificant the very machine that propels him into the sky. The message of the advertisement is clear: the aviator belongs to the new age.

---

[25] Ibid., p. 27.

Artists, architects, and intellectuals -- from Le Corbusier to Norman Bel Geddes -- became fascinated by the idea of the aviator as the harbinger of a new machine-based civilization. Distilled from Social Darwinism, Friedrich Nietzsche's idea of the *Übermensch*, and popular utopianism, the "New Man" had already gained wide currency in the avant-garde imaginations by the early 1920s[26] With all its loaded associations of transcendence, renewal, and lightness, the ascending body of the aviator, a Lindbergh type, offered the avant-garde an appealing mold for casting the New Man.

The America of the 1930s expressed its longing for the New Man in comic strip superheroes -- such as Superman, Buck Rogers, and Flash Gordon -- who were nothing less than airplanes in human forms, who had navigated the canyons of vertical metropolises or galactic colonies (**Fig. 10**).[27] In 1905 George Bernard Shaw had already coined the English word "Superman" as a translation

---

[26] See Ralph E Flanders, "The New Age and the New Man," *Toward Civilization*, in Charles Beard, ed., (London: Longmans, Green, 1930), pp. 21-37; Wolfgang Pehnt, "The 'New Man' and the Architecture of the Twenties," in J. Fiedler, *Social Utopias of the Twenties: Bauhaus, Kibbutz and the Dream of the New Man* (Wupperthal: Muller & Busmann Press, 1995); Alexandre Kostka, "Architecture of the "New Man": Nietzsche, Kessler, Beuysî in Alexandre Kostka and Irving Wohlfarth, eds., *Nietzsche and "An Architecture of Our Minds"*; Michael S Kimmel, *Manhood in America: A Cultural History* (New York: The Free Press, 1996).

[27] See for a discussion of the Superman theme, Les Daniels, *Superman Masterpiece Edition: The Golden Age of America's First Super Hero*; James S. Hans, *The Origins of the Gods* (New York: State University of New York Press, 1991); Umberto Eco, "The Myth of the Superman." *Diacritics* (Spring 1972); William H Young, "Images of Order: American Comic Strips During the Depression, 1929-1938," (unpublished doctoral dissertation, Emory University, 1969); Sam Moskowitz, *Explorers of the Infinite, Shapers of Science Fiction* (Cleveland and New York: The World Publishing Company, 1957), and *Seekers of Tomorrow, Masters of Modern Science Fiction* (Cleveland and New York: The World Publishing Company, 1961). Also see two novels from the 1930s that

of Nietzsche's *Übermensch*, with popular aviation magazines, such as *Flying* and *Aviator*, frequently using it in the 1910s and 1920s, well before DC Comics co-opted the term for their hero (**Fig. 12**).[28] The charged theme of ascension associated with superheroes, especially the *Übermensch*, provided aviation enthusiasts with a fitting cultural metaphor for attributing a heroic rebel persona to the aviator. H. G. Wells's science-fiction novels, such as *Men Like Gods* (1923) and *The Shape of Things to Come* (1933), or such popular science-fiction magazines as *Amazing Stories* and *Air Wonder Stories* frequently equated the consciousness of flight with the possibility of a new breed of super-moral ethereal beings. As early as 1893, Wells already prophesied the superhuman qualities of the "flying man" and imagined "what an observer might see watching the City of London one red evening in the year 21000 AD".[29]

Through the eyes of these types of aviating superheroes, many urban utopias (or dystopias) were conceived in literature, film, science fiction, and city planning during the early 20th-century. Hugh Ferriss's *Metropolis of Tomorrow* takes on a sublime character as it is narrated through the eyes of a solitary superhero, always from an aerial vantage point. And then there was Le

---

explicitly dealt with the Superman theme: Stanley G Weinbaum, *The New Adam* (1939) and W Olaf Stapledon, *Odd John* (1936).

[28] George Bernard Shaw, *Man and Superman: A Comedy and a Philosophy* (New York: Brentano's, 1905.

Corbusier, a life-long aviation enthusiast, who extolled the aviator as the new moral city planner of the future, whose aerial gaze could envision strategies to rectify problems of urban congestion, circulation, and growth. During the 1920s and 1930s, popular science as well as city design magazines, such as *Popular Mechanics, Flying, Scientific American,* and *American City Magazine,* frequently published laudatory articles on the contributions of aerial viewing and aerial mapping in planning the city of the future.[30] Despite their scientific pretenses, such articles were often tinged with a moralistic belief that the view from above would discipline all physical as well as social disorder.[31]

This discourse, conjoining the science of seeing with innocent heroism, met with enthusiasm from the artistic and literary communities, themselves in the midst of what Walter Benjamin in his Arcades Project (beginning in 1927) called "a crisis in perception," a crisis resulting from the reformulation of the "observer" by new forms of scientific knowledge and by the advent of new

---

[29] See H. G. Wells, "The Advent of the Flying Man - an Inevitable Occurrence," *Pall Mall Gazette* 8 (December 1893); Robert Holdstock, "Locations, A Modern Perspective of Science Fiction" (pp. 8-17) in Holdstock, *Encyclopedia of Science Fiction* (London: 1978).

[30] See for example "Aerial Mapping Aids County Planning," *American City*, Vol. 40, March 1929, New York), pp. 130-131; "Aerial Map Making with Electric Camera," *Popular Mechanic,* Vol. 47 (April 1927, Chicago), p. 543; "Aerial Photography Aids Highway Improvement Plans," *Aviation* Vol. 22, No. 18 (May 2, 1927, New York), p. 922; "Airplane Eyes Used for Map Making," *Scientific American*, Vol. 136 (April 1927, New York), p. 256.

[31] A few examples include Clayton D. Russell, "Seeing Things from Above," *Craftsmen Aero_News,* I, (September 1937, pp. 2, 7-8); Marcella Holtkamp, "A Bit of Philosophy on Flying," *Air Travel News,* III, (August 1929, pp. 21-22); and Mary E Burt, "Aeronautics Will Develop a Broader Vision," *Flying,* (New York, IV, Oct. 1915).

optical technologies.[32] As Jonathan Crary has shown, the 1920s marked a "historical threshold" for the intensified and destabilizing effect of the changing visual culture on the observer. During this period, a wide variety of visual media, such as television, sound film, advertising, shop display, and image-based mass marketing and political propaganda, changed the nature of subjective experience of the external world. Not only the emerging visual media instituted new ways of organizing space, time, and narrative, but they also demanded new kinds of observer participation and attention, a shift that resulted in intense experiments in perception psychology from 1890s to 1930s. There remains a historiographical debate about whether the intensification of the visual culture produced a crisis of confidence in the eye itself, or whether it was the concomitant increase in optical research that provoked the frenzy of the visual culture. What emerged from this debate was, however, the growing awareness of a changing nature of vision and, eventually, of the observer as a culturally and historically contingent entity.

Bel Geddes who had already experimented with the spectator's psychology as part of what was called the "New Stagecraft" movement in the US during the 1920s, rejected any sense of crisis in the power of the eye.[33] Bel

---

[32] See Jonathan Crary, "Spectacle, Attention, Counter-Memory," *October* 50 (Fall 1988), pp. 102- 3.
[33] The "New Stagecraft" movement in the US during the 1920s was essentially imported from Europe. Britain's Gordon Craig, the movement's theoretician, called for a careful study of the play in order "to grasp the whole, to discover its inner meaning, to reveal its unity and purpose,

Geddes on his part seized the very means of seeing the future as an occasion to idealize an observing subject, one who was of course exclusive, male, and supposedly superior to common folks. His interests in the evolutionary concept of the "Man of Tomorrow"[34] and in aviation found a common ground in casting the Futurama's spectators as culturally valorized aviators. An aviator's holistic view of the "world of tomorrow" evidently proved reinvigorating for the Futurama's spectators, jaded by America's decade-long Depression. The Futurama and its aerial viewpoint resonated with the same heroic moralism that laid the foundation for Depression-era America's longing for a prosperous future.[35] As I will show, Bel Geddes deployed the Futurama's mode of seeing to

---

to select the essential and repeat it constantly with fitting variations, to suggest rather than to reveal, to work, above all, with the imagination and the poetic sense." It was Hiram Kelley Moderwell's *The Theater of To-day* that introduced European developments to American stagecraft. Carrying Craig's ideas even farther, Moderwell suggested that "subjective or 'expressive' stylization" required "that the stage setting, as a work of art in itself, should express the dominant mood or emotion of the play." Accordingly, an effective play required a synthetic integration of script, set, color, music, and even the architecture of the theater itself. Norman Bel Geddes became a leading exponent of the New Stagecraft movement. In his stage designs, the traditional two-dimensional proscenium stage with its picture frame was replaced by a three-dimensional stage projecting into the audience, thus discarding the conventional separation between the performer and audience. For Max Reinhardt's production of *The Miracle* in 1923, Bel Geddes transformed the interior of New York's Century Theater into a medieval cathedral, thus suggesting a total immersion of both the actors and spectators within the intensely expressive mood of the play. On introduction of early 20th-century European theatrical ideas to the U.S. see O. G. Brockett, *History of the Theater* (Boston: 1968). Also, see H. Kelley Moderwell, *The Theater of To-day* (New York: 1914), George E. Bogusch, "Unity in the New Stagecraft: A Study of Productions Designed and Directed by Norman Bel Geddes," Ph.D. dissertation, Indiana University, 1968.

[34] Norman Bel Geddes, "The Man of Tomorrow," *Info* (Vol. 1, No. 4) April 7, 1939.

[35] See for a discussion of the cultural climate during the Depression, Susman, Warren, ed. *Culture and Commitment, 1929-1945.* (New York: 1973). Also see, Susman, "The Thirties," (pp. 179-218) in *The Development of an American Culture,* eds. Stanely Coben and Lorman Ratner (New Jersey:

construct an idealized aviator subject (who was, of course, falsely detached from the messy reality of the ground) and that the Futurama was an aerial fantasy conceived through the eyes of this subject. In order to comprehend the Futurama's visual appeal, we need to take into account the new ontology of vision that resulted from flight and its associated revisions of aesthetic practice and even morality.

1.4 From the Street to the Sky: The Aviator as an Aerialized *Flâneur*

If flight proposed new modes of looking at the world, then that "newness," however, ought to be contested against common visual modes that might have been employed in pre-20th-century visual and literary representations of cities.[36] The Paris that took shape in visual arts and literature as the "capital of the 19th century," for instance, had been represented predominantly from the viewpoint of a pedestrian in the street, or one might say, through the eyes of the *flâneur*, the curious urban wanderer who became a central

---

1970); Lawrence W. Levine, "American Culture and the Great Depression," *The Yale Review* 74, 1985.

[36] Although "newness" implies a rupture in the continuum of events, the new does not necessarily replace or banish the old. Maintaining its newness, the new can coexist with the old, and at the same time be subjected to critical inquiries for its own theoretical validity. While the airplane, as well as recent high-resolution satellite imaging systems, made possible new optical angles for earth watching, the traditional techniques of representing cities -- such as Renaissance-era "ichnographic" city views, imagined aerial views (drawn from a high point, such as a hill or a tower), landscape drawings, and 19th-century panoramic paintings -- still exist in the repertoire of our urban imaginations.

literary figure of 19th-century Paris.[37] Although panoramas with totalizing city views reached their height of popularity in the last quarter of 19th-century Paris, it was the *flâneur* who captured this teeming metropolis's variegated, transient views in the form of a series of urban walks.[38] The *flâneur*'s aimless walking as a mode of urban imagining offers a cultural prism through which 19th-century Paris can be viewed as an historical narrative of metropolitan culture.

My aim here is not to offer yet another broad social and cultural interpretation of the *flâneur*; rather, I would like to focus on a related debate about the *flâneur*'s activity: the efficacy of *walking* as a narrative device for his urban conceptions, and then to pose it as a theoretical foil against which ascensional vision could be usefully explored as a 20th-century *flânerie*. That the *flâneur* traverses the streets on foot and frames the city from a pedestrian's

---

[37] See Charles Baudelaire, *Baudelaire: Selected Writings on Art and Artists*, trans., P. E. Charvet (Cambridge: Cambridge University Press, 1972), pp. 390-435; Charles Baudelaire, *The Painter of Modern Life and Other Essays*, ed. Jonathan Mayne (pub. information unavailable), pp. 1-40; Walter Benjamin, "Paris--The Capital of the Nineteenth Century," in *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism*, trans. Harry Zohn (London: NLB, 1973). For in-depth analyses of the *flâneur* see, Christopher Prendergast, *Paris and the Nineteenth Century* (Oxford: Blackwell, 1992); Tester, Keith, ed., *The Flâneur* (London and New York: Routledge, 1994); Marc Eli Blanchard, *In Search of the City: Engels, Baudelaire, Rimbaud* (Stanford, CA: Amma Libri, 1985); Anne Friedberg, "The Baudelairean Observer: The "Mobilized" Gaze of the *Flâneur*," in *Window Shopping, Cinema and the Postmodern* (Berkeley: University of California Press, 1993); Vanessa R. Schwartz, "Cinematic Spectatorship before the Apparatus: The Public Taste for Reality in Fin-de-Siècle Paris," in Linda Williams, ed. *Viewing Positions, Ways of Seeing Film* (New Brunswick and New Jersey: Rutgers University Press, 1995); James Donald, "The City, the Cinema: Modern Spaces," in Chris Jenks, ed., *Visual Culture* (London and New York: Routledge, 1995).

[38] For the rise of panorama in *fin-de-siecle* Paris, see Stephan Oettermann, *The Panorama, History of a Mass Medium*, trans., Deborah L. Schneider (New York: Zone Books, 1997); Vanessa R. Schwartz, "Cinematic Spectatorship before the Apparatus: The Public Taste for Reality in Fin-de-Siècle

viewpoint shapes the very conditions of his urban inquiry and, eventually, his urban narrative. Art historians, cultural critics, and urban sociologists have traditionally neglected this aspect of the *flâneur* in favor of studying the ideological, social, and cultural construction of the *flâneur* himself.[39] What concerns me in my project is the *flâneur*'s pattern, mode, and system of engagements with the city, and how his embodied optical practices within various urban spaces inform his metropolitan imagination of Paris. Does the *flâneur*'s situatedness in the street condition his particular urban narratives? Conversely, does the street, the hub of the 19th-century metropolis, create the *flâneur*, the Baudelairean modern man?

The *flâneur* wanders through the transitory spaces of a modern metropolis: gaslit streets, alleys, boulevards, cafes, theaters, arcades, brothels, parks, markets, and the crowd. With this type of itinerary, the *flâneur* typically inhabits and meanders through the very core spaces of the metropolis, thereby representing the city as a collage of multiple, fragmentary, and fleeting urban spectacles, peculiarly open only to a pedestrian observer's vision from within the urbanscape. The city sense that the *flâneur* conveys also registers his own

---

Paris" in Linda Williams, ed. *Viewing Positions, Ways of Seeing Film* (New Brunswick and New Jersey: Rutgers University Press, 1995).

[39] While literature on 19th-century Paris as well as on the *flâneur* is extensive, I have surveyed the key analyses, such as those by T. J. Clark, Marshall Berman, Christopher Prendergast, Keith Tester, Priscilla P. Ferguson, Bruce Mazlish, et al. and have not found any critical reflection on how the *flâneur*'s peregrination itself forms an epistemic basis for his peculiar urban imagination.

physical location, albeit mobile, within the city as a particular kind of street-level visual field. It is the *flâneur*'s atomized view from within the street that, as Christopher Prendergast noted in his book *Paris and the Nineteenth Century,* formed the ideological pattern of the 19th-century urban imagination. *Flânerie* became a standard narrative device for the literary depiction of the 19th-century city as well as for guidebooks and journalistic reporting, often construed in the form of a pedestrianized itinerary through the city.[40]

One of the prose poems of Baudelaire's *Paris Spleen*, "Loss of a Halo," could be viewed, for instance, as an example of such a narrative device. The backdrop of this poem is the boulevard. The poem develops as a chance encounter between a poet -- the *flâneur* who prowls the streets incognito -- and an "ordinary man" who run into each other in a disreputable place, perhaps a brothel. For the ordinary man, finding the poet in such a disreputable place came at a huge cost: his exalted idea of the poet shatters, a collapse that reverberates in his aghast question: "What! You here, old man? You in such a place! You the ambrosia eater, the drinker of quintessences! This is really a surprise." To this, the poet answers:

---

[40] A well-known example of this type of narrative technique is Charles Baudelaire's *Paris Spleen,* trans., Louise Varèse (New York: New Directions, 1947; originally published in 1869). Another excellent example is *Paris-Guide,* a collection of essays by various authors, including a long preface by Victor Hugo (later published under the title of *Paris*); *Paris-Guide,* ed. Louis Ulbach (Paris, 1867, republished 1983, ed. Corinne Verdet). An excellent analysis of this narrative technique is to be found in Prendergast, *Paris and the Nineteenth Century,* pp. 3-8.

> My friend, you know my terror of horses and vehicles. Well, just now as I was crossing the boulevard in a great hurry, splashing through the mud in the midst of a seething chaos, and with death galloping at me from every side, I gave a sudden start and my halo slipped off from my head and fell into the mire of the macadam. I was far too frightened to pick it up. I decided it was less unpleasant to lose my insignia than get my bones broken. Then too, I reflected, every cloud has a silver lining. I can now go about incognito, be as low as I please and indulge in debauch like ordinary mortals. So here I am as you see, exactly like yourself.[41]

No doubt the poem is replete with allegories, yet Baudelaire's message seems clear. He chronicles the poet's sudden descent, *un mouvement brusque,* from his quasi-divine pedestal to the ordinary, contradictory, and shifting everyday life of the street -- a fall metaphorized by the slipping of the "halo" to "the mire of the macadam." This is a *fall,* yet a heroic one. The poet willingly relinquishes his celebrated position high above the "ordinary mortals" to participate in the infernal and chaotic modernist drama that takes place in the boulevard. In this poem, Baudelaire invents a paradoxical sense of heroism in which the hero celebrates himself by the desanctification of his own exalted position. Baudelaire's hero does not ascend to the divinity of high art, but descends to the ordinariness and squalor of the street, where he becomes the *flâneur* and the self-proclaimed narrator of modern life. By pulling down the poet to the street, Baudelaire demonstrates his own refusal to see the 19th-century modernist

[41] Baudelaire, *Paris Spleen,* p. 94.

drama from an exalted God's-eye point of view; rather he chooses to see it through the mobilized gaze of the *flâneur*, merged with the crowd in the street.

In "The Painter of Modern Life," (1863) Baudelaire portrays the *flâneur* as a figure *within* the crowd: "The crowd is his domain, just as the air is the bird's, and water that of the fish. His passion and his profession is to merge with the crowd."[42] Baudelaire's portrayal of the *flâneur* reveals a vertical stratification of three optical domains: the bird belongs to the air, the fish to the water, and the *flâneur* to the crowd, the mass that steadfastly sticks to the street. By merging the *flâneur* with the crowd, Baudelaire not only suggests *flânerie* as a common street-level optical undertaking, but also affirms the street as the principle theater where the 19th-century drama of modernity took place.

In his book *All That is Solid Melts into Air* Marshall Berman notes: "The distinctive sign of nineteenth-century urbanism was the boulevard, a medium for bringing explosive material and human forces together."[43] The boulevard, as well as its ongoing modernist drama, creates a spectator of its own, who witnesses the gluttony of urban spectacles. As Berman argues:

---

[42] Charles Baudelaire, *Selected Writings on Art and Artists*, trans., P. E. Charvet (Cambridge: Cambridge University Press, 1972), p. 399.

[43] Marshall Berman, "Baudelaire: Modernism in the Streets," in *All that is Solid Melts into Air: The Experience of Modernity* (New York: Penguin Books, 1982) p. 165. For a discussion of modernism and the street, see John R. Gold, "The Death of the Boulevard," in *Images of the Street, Planning, Identity and Control in Public Space*, ed. Nicholas R. Fyfe (London and New York: Routledge, 1998); Anthony Sutcliffe, ed., *Metropolis 1890-1940* (Chicago: The University of Chicago Press, 1984), pp.

> The man in the modern street, thrown into this maelstrom, is driven back on his own resources--often on resources he never knew he had--and forced to stretch them desperately in order to survive. In order to cross the moving chaos, he must attune and adapt himself to its moves, must learn to not merely keep up with it but to stay at least a step ahead. He must become adept at *soubresauts* and *mouvements brusques*, at sudden, abrupt, jagged twists and shifts--and not only with his legs and his body, but with his mind and his sensibility as well.[44]

Berman aptly casts the 19th-century idea of the modern man as the cultural product of a dialectical relationship between the shifting sights of the street and the types of spectatorship they call for. Berman's reference to *legs* offers the most useful insight into how the man of the street both navigates and creates his own visual field. Legs in action signify a meandering pedestrian man, and the scope of the "modern life" that he narrates seems contingent upon his own nearness to the ground. What I am trying to suggest is that mental processes and one's conceptual framework are closely tied to one's physical location within a particular visual field.

In 1889, the Viennese city planner Camillo Sitte proposed an "ideal city" in his book, *City Planning According to Artistic Principles*. Sitte's city was essentially to be experienced from the viewpoint of a pedestrian walking through the neo-Baroque city's winding streets and experiencing its surprising vistas.[45] The

---

95-128; Anthony Vidler, "The Scenes of the Street: Transformations in Ideal and Reality 1750-1871," in *On Streets*, ed., Stanford Anderson (Cambridge, MA: The MIT Press, 1986).

[44] Berman, *All that is Solid Melts into Air*, p. 159.

[45] For an analysis of Camillo Sitte's urbanism, see George and Christiane Collins, *Camillo Sitte and the Birth of Modern City Planning* (New York: 1965) and "The Humanistic City of Camillo Sitte," in

"spectator" of Sitte's city is nothing less than an apotheosis of the *flâneur*, an emblematic representation of 19th-century spectatorship. Whereas Baudelaire's *flâneur* scans the "infernal" fleeting scenes of the street theater, Sitte's spectator gazes nostalgically at neo-baroque façades that orient him within the city's urban networks. As they peregrinate within the cityscape, both spectators create their own street-level visual field.

This is the type of *experiential* mapping of urban spaces that the French social critic Michel de Certeau articulated in the chapter "Walking in the City" in his *The Practice of Everyday Life*:

> They [the men of the street] are walkers, *Wandersmänner*, whose bodies follow the thicks and thins of an urban 'text' they write without being able to read it. These practitioners make use of spaces that cannot be seen...The paths that correspond in this intertwining, unrecognized poems in which each body is an element signed by many others, elude legibility. It is as though the practices organizing a bustling city were characterized by their blindness. The networks of these moving, intersecting writings compose a manifold story that has neither author nor spectator, shaped out of fragments of trajectories and alterations of spaces: in relation to representations, it remains daily and indefinitely other. [46]

What de Certeau aims to articulate here is not only the subjectivity of a "walker" spectator of the city, but also the more general scope and nature of a pedestrian's visual field. This visual field allows only partial observations of an urban form and its manifold stories that are "shaped out of fragments of

---

The Pedestrian in the City, ed., David Lewis (Princeton, New Jersey: D. Van Nostrand Company, Inc., 1966), pp. 99-103.

trajectories." This is the kind of visual field that Walter Benjamin termed "prison-world," in which "[o]ur taverns and our metropolitan streets, our offices and furnished rooms, our railroad stations and our factories appeared to have us locked up hopelessly."[47] The pedestrian's bodily adhesion to the ground, even with his adrift perspectival mode, limits his optical expanse. That, in turn, allows only a collage of fragmentary glimpses, rather than a panoptic reading of the city form as a legible whole. This fragmentary visual as well as experiential mode of the archetypal walker was persuasively employed by Hugo, Balzac, Baudelaire, Dickens, and Simmel and, well into the 20th century, Joyce and Benjamin to narrate the cultural emergence of the modern metropolis roughly between the industrial revolution and World War I. The 19th-century "modern life" of cities in literature and Impressionist paintings, revolving around boulevards, streets, parks, alleys, arcades, and façades, has been represented through the eyes of the earth-bound *flâneur*. The *flâneur*'s optical practices proved particularly effective as a narrative matrix for the brand of 19th-century modernity that manifested itself as "la rapidité du tournoiement parisien," a transient swirling landscape

---

[46] Michel de Certeau, "Walking in the City," in *The Practice of Everyday Life*, trans., Steven Rendall (Berkeley: University of California Press, 1984), p. 93.

[47] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, trans., Harry Zohn (New York: Schocken, 1969), p. 236.

marked by chance encounter, sudden twist, frenzied movement of money, goods, and bodies.[48]

Against this 19th-century literary codification of the *flâneur* and his close-up encounter with shifting urban phenomena, the scopic possibilities of an aviator—an aerialized *Flâneur*—can be profitably explored. If bodily proximity to the ground as well as a horizontal visual field shapes the *flâneur*'s urban epistemology, then what are the theoretical shifts in perception and visuality when the body of the spectator ascends? What are the epistemological and conceptual implications of such shifts? How can an aviator's aerial vision and the corresponding effects on subjectivity translate into aesthetic forms? To address these questions, I will develop a theoretical basis for what could be called an aesthetics of ascension that that are related to new forms of spectatorship, forms that are different from those employed by the *flâneur*. Couched in the early 20th-century technological utopianism, the aesthetics of ascension not only spawned a new visual culture, but also fueled disparate avant-garde movements seeking to break free from the rigid aesthetic codes of academic establishment.

---

[48] Balzac uses the expression, "la rapidit? du tournoiement parisien," (the rapidity of Parisian turning or twists) in *Illusions perdues* (vol. 4, p. 62) to describe his impressionistic view of the intense 19th-century Parisian life. On the relations among the city, speed, and narrative in Balzac, see an interesting analysis by Franco Moretti, *The Way of the World: The Bildungsroman in European Culture* (London: 1989), p. 142.

In a recent book, *Open Sky*, the French critic and urbanist Paul Virilio has cogently captured the *sine qua non* of an aesthetic of ascension:

> [T]he entire history of Quattrocentro perspectives is only ever a story of struggle, of the battle of geometers vying to make us forget the 'high' and the 'low' by pushing the 'near' and the 'far', a *vanishing-point* that literally fascinated them, even though our vision is actually determined by our weight and oriented by the pull of earth's gravity, by the classic distinction between *zenith* and *nadir*...The breakaway of the Wright brothers on their first take-off from the beach at Kitty Hawk or, perhaps, the liftoff of the Apollo 11 mission at Cape Canaveral, show us another way, an exotic reorganization of sight that would finally take account of a possible *fall upwards*...An artificial counter-gravity [is] allowing man to shed telluric gravity, the stability of gravitational space that has always oriented man's habitual activities.[49]

Virilio's critique of *quattrocento* perspective essentially derives from the similar anxiety Benjamin expressed over the "prison-world" visual field of the earth-bound spectator. Benjamin's, as well as Virilio's, is a symptomatic Enlightenment anxiety. This anxiety derives from a sense of optical mutilation. The *quattrocento* inability to overcome the physical limitations of the earth-bound spectator (eye level and distance from the picture plane) seems fundamentally at odds with the Enlightenment desire to see a heroic metapicture, in which all spatial secrets, linkages, languages, ethos, and lores would be rendered transparent. To be earth-bound is not only to come under an interiorizing spell resulting in shortsightedness and fragmentary vision, but also to conform passively to *given* visual codes, or to be confined, so to speak, within

---

[49] Paul Virilio, *Open Sky*, trans., Julie Rose (London and New York: 1997), pp. 1-2.

perspective's horizontal coordinates of right and left, or near and far. Ascension, with all its mythological associations running from Daedalus to the Wright brothers to Lindbergh, both metaphorically and literally offered means for transcending all kinds of claustrophobia and shortsightedness.

The ascending body outgrows earthly limitations and mutilated visions experienced in Benjamin's prison-world of labyrinthine structures, or within the morally stifling confines of Nietzsche's boundary-stones. The expansive vista that opens up raises the spectator to the level of a *dieu voyeur*, whose all-seeing gaze transforms the labyrinth below into a holistic legible "text." As de Certeau noted:

> One's body is no longer clasped by the streets that turn and return it according to an anonymous law...An Icarus flying above these waters, he can ignore the devices of Daedalus in mobile and endless labyrinths far below. His elevation transfigures him into a voyeur. It puts him at a distance. It transforms the bewitching world by which one was "possessed" into a text that lies before one's eyes. It allows one to read it, to be a solar Eye, looking down like a god. The exaltation of a scopic and gnostic drive: the fiction of knowledge is related to this lust to be a viewpoint and nothing more...Is the immense texturology spread out before one's eyes anything more than a representation, an optical artifact? It is the analogue of the fascimile produced, through a projection that is a way of keeping aloof, by the space planner urbanist, city planner or cartographer. [50]

De Certeau offers here a useful insight into the desirability inherent in ascensional vision. The desire of a *dieu voyeur* is to explode the interiority of the labyrinth, to reduce all complexities (as visually experienced from within) into a

---

[50] Michel de Certeau, "Walking in the City," in *The Practice of Everyday Life*, p. 92-93.

visually graspable geometrical fact, or simply a diagram for continual rearrangement. Latent in such visual practices is the promise of what de Certeau calls the "Concept City" to be found in 20th-century utopian and urbanistic discourse.[51] The fantasy of the Concept City animated modernist architects, urban planners, and reformers in their desire to transform the city into an object of knowledge and governable space. They dreamed of bringing the diversity, aberration, arbitrariness, and dynamism of urban life into an ordered spatial matrix, a geometrical pattern, and a rationalized blueprint, programmed to effect desired social behavior. In ascensional vision, urban planners found the most expressive embodiment of the Enlightenment aspiration to render the city transparent. The planner's moralized vision transformed the city into, as de Certeau puts it, "*un espace propre*": a purified, hygienic space, devoid of "all the physical, mental and political pollutions that would compromise it."[52] If the city is an ailing body, then its lungs and arteries would be surgically opened up to allow the controlled flow of air, light, traffic, waste, and people. It is with this heroic sentiment that modernist planners embraced simultaneously the Enlightenment paranoia about anything closed and labyrinthine, and the Enlightenment desire to make everything visible and visually hygienic.

---

[51] de Certeau, "Walking in the City," p. 95.
[52] de Certeau, "Walking in the City," pp. 94-95.

If the labyrinth's terrifying aspect lies in its inescapable interiority, then rising *above* it means to collapse its very meaning, and to see its complex internal routes turn into a mere optical game.[53] From above, the eye exercises an economy of vision as it finds a way out of that game in no time. Further, playing the optical game is already infused with the desire to open, turn, move, cut, and straighten out the labyrinth's incarcerating internal structure. The Enlightenment root of such visual technologies was discussed in Jean le Rond D'Alembert's 1751 book, *Preliminary Discourse to the Encyclopedia of Diderot.* D'Alembert positioned the aerial view as the philosopher's operating tool for the "encyclopedic arrangement of knowledge."[54] D'Alembert argued that knowledge about science and the arts exists in the form of a labyrinth, and it is the task of the philosopher to situate himself at a vantage point above the labyrinth with a view to seeing the complex linkages, separations, and interconnections between the fragments of knowledge, a visual mastery that would be impossible from within. As D'Alembert observed, "It is a kind of world map which is to show the principal countries, their position and their mutual dependence, the road that leads directly from one to another." Such words as "overview," "oversee,"

---

[53] For an analysis of the labyrinth from this angle, see Hubert Damisch, *Skyline: The Narcissistic City, Cutural Memory in the Persent*, trans., John Goldman (Stanford, CA: Stanford University Press, 2001), pp. 11-15.

[54] Jean le Rond D'Alembert, *Preliminary Discourse to the Encyclopedia of Diderot*, trans., Richard N. Schwab and Walter E. Rex (New York: 1963), pp. 43-45; quoted in Martin Jay, *Downcast Eyes, The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: 1993), p. 83.

"supervision," and "worldview," describe, both in literal and abstract terms, what D'Alembert codified as the philosopher's idealized optical practice. Such practices are rendered in visual terms, in one instance, in the "fantasy of 1775" in *Le Philosophe sans Pretention* (Fig.).[55] What is telling in these words is their intertwined etymologies of both optical signification and spatial dimension. For instance, according to the *OED*, "overview" means: "to view from a superior position." To be in a superior position (above), then, is to be superior in knowledge.

Such optical practices, of course, cannot be seen as merely the fulfillment of an innocent Enlightenment desire for visual transparency. The vast postmodernist scholarship over the last two decades or so has pointed out vision's complicity with various operative mechanisms of social and political control.[56] The logic behind the alleged politics of visual transparency, surveillance, and totalizing views has become all too familiar since Michel Foucault, Roland Barthes, Guy Debord, John Berger, Paul Virilio, and more recently Jonathan Crary, Rosalind Krauss, and Martin Jay, among many others,

---

[55] La Folie, Louis Guillaume de, *Le Philosophe sans Pretention, ou l'Homme Rare* (Paris: Clousier, 1775).

[56] For excellent collections of postmodernist essays on the problematics of vision, see David M. Levin, ed. *Modernity and the Hegemony of Vision* (Berkeley: University of California Press, 1993); Hal Foster, ed., *Vision and Visuality* (Seattle: Bay Press, 1988). Also see, David M. Levin, *The Opening of Vision: Nihilism and the Postmodern Situation* (New York: 1988).

have unleashed attacks on vision's Cartesian innocence instituted through a mechanistic *camera obscura* model of seeing.[57]

Foucault's now-classic analysis of the English social reformer Jeremy Bentham's panopticon (1791), for instance, has singularly rebutted the credence in sight as the noblest of senses as well as questioned the innocent possibilities of subjective experience and rational agency.[58] Foucault's analysis explains how the "scopic regime of power" operates through the visual register: an unseen seer (guard), atop the central tower of the panopticon, surveys an incarcerated subject in the peripheral cell below. The consciousness of being constantly visible to the all-seeing guard induces a feeling of self-discipline in the inmate, thereby

---

[57] For an analysis of the *camera obscura* as the emblematic visual apparatus of Cartesian perspectivalism, see Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, MA: The MIT Press, 1990); Karsten Harries, "Descartes, Perspective and the Angelic Eye," *Yale French Studies*, 49 (1973). For a general discussion of vision's complicity with the questions of domination, control, and desire, I suggest Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans., Alan Sheridan (New York: Pantheon, 1979); Guy Debord, *The Society of the Spectacle*, trans. Donald Nicholson-Smith (New York: 1990); Roland Barthes, "The Metaphor of the Eye," in *Critical Essays*, trans., Richard Howard (New York: Hill and Wang, 1986); John Berger, *Ways of Seeing* (London: Penguin Books, 1972); Paul Virilio, *War and Cinema* (London and New York: Verso, 1989, first pub 1984). Among the recent scholars who have extensively written on the topic and whom I found useful for my own work are Martin Jay, *Downcast Eyes, The Denigration of Vision in Twentieth-Century French Thought* (Berkeley: University of California Press, 1993); Rosalind Krauss, *The Optical Unconscious* (Cambridge: The MIT Press, 1993) and "Antivision," in *October* 36 (Spring 1986), pp. 147-154; John Rajchman, "Foucault's Art of Seeing," *October*, 44 (Spring, 1988); Jean Starobinski, *The Living Eye*, trans., Arthur Goldhammer (Cambridge, Ma: 1989).

[58] Foucault, *Discipline and Punish*, pp. 195-228. For further discussion on Jeremy Bentham's panopticon, see Jeremy Bentham, *Panopticon, Works of Jeremy Bentham Published under the Superintendence of His Executor, John Bowring*, II vols. (New York: Russell and Russell, 1962); Mark Poster, *Foucault, Marxism and History* (Cambridge, MA: Polity Press, 1984); Jacques-Alain Miller, "Jeremy Bentham's Panoptic Device," trans., Richard Miller, *October* 41 (Summer 1987), pp. 3-29; Robin Evans, "Bentham's Panopticon, An Incident in the Social History of Architecture," *AAQ III* (Spring, 1971), pp. 21-37.

rendering the *actual* surveillance of the inmate unnecessary. The panopticon produces a subjective effect—a "brutal dissymmetry of visibility"—for both positions in Bentham's system: the *seer* with a privileged sense of omnipotence and the *seen* with a sense of self-discipline. Foucault invoked the panopticon largely as an epistemological model to explain how the subject in the modern society is regulated eventually by a "fictitious" relationship between the seer and the seen. Nonetheless, Foucault's paradigm begins with an actual optico-spatial model. A "pure architectural and optical system," the panopticon repositions the seer guard and the inmate into a visual relation of domination and control. The privileged and asymmetrical positioning of the panoptic seer (or his/her imagined absence) in relation to the seen ultimately accounts for the political production of self-regulatory subjectivity.

Despite its eventual abstract application as a larger societal system in the modern era, Foucault's study of Bentham's panopticon does take into account the idea of an elevated *spatial* positioning as a point of departure for its construction of a powerful seer who embodies the desire to control the objects of inquiry. While I am concerned with aerial vision as a historical practice contextualized within interwar technological utopianism, Foucault's analysis, for instance, allows me to question the discourse of vision of this particular period

that had generally been uncritically attended by historians with the very optimism they ventured to question.

No systematic study to date has been attempted to analyze the aviator's perspective, which, as I suggested earlier, in the early 20th century shifted from, for instance, the 19th-century *flâneur's* vision.[59] The art critic Gertrude Stein, speculating on the cubist breakup of the so-called "old ways of seeing" by aerial vision, has commented on this rupture in spectatorship:

> ...the twentieth century is not the same as the nineteenth century and it is very interesting knowing that Picasso has never seen the earth from an airplane, that being of the twentieth century he inevitably knew that the earth is not the same as in the nineteenth century, he knew it, he made it, inevitably he made it different and what he made is a thing that now all the world can see. When I was in America I for the first time travelled pretty much all the time in an airplane and when I looked at the earth I saw all the lines of cubism made at a time when not any painter had ever gone up in an airplane. I saw there on the earth the mingling lines of Picasso, coming and going, developing and destroying themselves, I saw the simple solutions of Braque...the twentieth century is a century which sees the earth as no one has ever seen it... [60]

While this type of ebullient avant-garde rhetoric must be observed obliquely, we are nonetheless made aware of a shift in spectatorship, a shift in which traditional ideas of architecture and urban forms were subjected to new sets of spatial reinterpretation.

---

[59] My study hopes to make an important contribution to this little-explored field, a deserved one on the eve of the centennial celebration in 2003 of the arrival of powered human flight. The American Institute of Aeronautics and Astronautics (AIAA) has chalked out an elaborate program to critically reflect on the cultural, social, and political significance of aviation. See the institute's website: http://www.flight100.org.

[60] See Gertrude Stein, *Picasso, The Complete Writings* (Boston: Beacon Press, 1970), p. 88.

No city of course registered this spectatorial shift more than the "rising" urban form of New York, or to be more specific, Manhattan. If 19th-century Paris spontaneously solicited the practices of *flânerie* in a Baudelairean sense, then early 20th-century Manhattan increasingly became the locus of a new type of aerialized *flânerie* (**Fig. 11**). By the end of World War I, when New York became, as John Dos Passos noted, the world's artistic and financial capital, Manhattan's explosive vertical momentum and bustling superhuman energy created a new cult of urban optimism.[61] Rendered with more artistic homage than any other city in the 20th century, Manhattan's "newness" in terms of its urban experience was buttressed by a flurry of contemporary visual and literary works. Among the key contemporary figures who variously identified a unique ascensional psyche in Manhattan's new urban environment were: in photography, Alfred Stieglitz, Ira Martin, Margaret Bourke-White, and Edward

---

[61] John Dos Passos, *The Big Money: USA*, vol. 3 (New York: Random House, Modern Library, 1937), pp. 63-65. For New York's urban optimism see Joshua Taylor, "The Image of Urban Optimism," in *America as Art* (Washington D.C.: The Smithsonian Institution Press, 1976) and Marshall Berman, "In the Forest of Symbols: Some Notes on Modernism in New York," in *All that is Solid Melts into Air: The Experience of Modernity* (New York: Penguin Books, 1982). For a general discussion of Manhattan's status as the premier city of the 20th century, see John C Van Dyke, *The New New York, A Commentary on the Place and the People* (New York: The Macmillan Co., 1909); W. Parker Chase, *New York, The Wonder City 1932* (New York: Wonder City Publishing Co., 1932); John A. Kouwenhoven, *The Columbia Historical Portrait of New York: An Essay in Graphic History* (New York: Harper & Row, Publishers, 1972); Robert Stern, Gregory Gilmartin, and Thomas Mellins, *New York 1930* (New York: Rizzoli, 1987); M. Christine Boyer, "The New York Panorama: A Paradoxical View," in Patricia C. Phillips, ed., *City Speculations* (Queens Museum of Art, Princeton Architectural Press, 1996); Jean Clair, ed., *The 1920s: Age of the Metropolis* (Exh. cat. Montreal: The Montreal Museum of Fine Arts, 1991); Anthony Sutcliffe, ed., *Metropolis 1890-1940* (Chicago: The University of Chicago Press, 1984); Rem Koolhaas, *Delirious New York, A Retroactive Manifesto for Manhattan* (New York: The Monacelli Press, 1994).

Steichen; in painting, Joseph Stella, Charles Sheeler, John Marin, Leopold De Postels, Georgia O'Keeffe, and Jan Matulka; in architectural and futuristic rendering, Harry M. Pettit, Harvey Wiley Corbett, and Hugh Ferriss; in films, Charles Sheeler and Paul Strand (*Manhatta*, 1921), Fritz Lang (*Metropolis*, 1926), and David Butler (*Just Imagine*, 1930); in fiction and criticism, John Van Dyke (*The New New York*, 1909); John Dos Passos (*Manhattan Transfer*, 1925), Janet Flannery (*The Cubical City*, 1926).

One of the central themes of what Rem Koolhass has recently called "Manhattanism" was of course its frenzied vertical growth—the skyscrapers that provided a lofty perch for an Olympian imagination rather than a sensory, ambulatory, and impressionistic view of the city.[62] From high above in the Flatiron, Singer, Woolworth, Empire State, and Chrysler Buildings, Manhattan as a whole became an urban laboratory for a myriad of optical experiments. The 19th-century Parisian *flâneur*'s penchant for fleeting street scenes enlivened by observations with human vignettes and sensory responses to the crowds and

---

[62] Rem Koolhaas, *Delirious New York*, p. 25. Koolhaas defined "Manhattanism" as "a world totally fabricated by man, i. e., to live *inside* fantasy." He views Manhattan as a laboratory for futurist experiments and dreaming from 1890 to 1940. But it was that peculiar vertical momentum and heroic imagining that provided Manhattan's 20th-century luster, as Koolhaas noted: "For the first time, Manhattan's inhabitant's can inspect their domain...Such inspections from above become a recurrent theme under Manhattanism; the geographical self-consciousness they generate is translated into spurts of collective energy, shared megalomaniac goals." For a further discussion of the theme, see Jean-Louis Cohen, *Scenes of the World to Come, European Architecture and the American Challenge 1893-1960* (Paris: Flammarion, 1995), pp. 26, 31-37. Cohen argues that "the vertical momentum of New York...informed a new way of looking at cities: profile or aerial views

atmosphere was replaced by the Manhattan spectator's self-conscious predilection for grand, synoptic aerial inspections of the city. Urban "chaos," as could be experienced by a pedestrian, was condensed into a utopian kaleidoscope of towers, bridges, roofscapes, elevated streets, and flashing electric lights. This kind of visual practice no doubt attributed a Herculean overtone to the imagination of future cities, an urban optimism that marked a departure from 19th-century America's simultaneous fascination with pastoral landscape and industrial reality.[63] To a generation of artists, photographers, and novelists impatient with traditional values and sedimentary existence, aerial viewing promised emancipation from the ordinary and reinforced their romantic belief (falsely, in hindsight) in the philosophy of progress. The holistic view of Manhattan's growing urban form, for instance, was psychologically comforting, suggesting a self-conscious ascension to something larger than the self. Ironically, such views often became fused with the capitalist ambition of corporate CEO's, often occupying penthouses atop skyscrapers.

---

replaced the Renaissance *vedutta*...The visual repertory of Americanist urban art thus involved new types of representation..."

[63] This observation is based on Leo Marx's classic *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964). Marx argued that literary awareness of accelerating mechanization appears in the works of classic 19th-century American authors, such as Hawthorne and Twain, who revealed their anxieties in images of locomotives or steamboats intruding an Edenic landscape. But as Marx brilliantly shows us, such anxieties can not be simply packaged as anti-machine sentiment. Rather, they ought to be seen as a corollary effect of a permanent American dialectic between pastoral dream and industrial reality, a dialectic that gives American art and literature its unique hue. For anti-urbanism in 19th-century American mind, see Morton and Lucia White, *The Intellectual versus the City*.

Art historians and cultural critics have studied, albeit with uncritical romanticism, the view from skyscrapers as a new urban obsession. They have sought to link aerial spectatorship from skyscrapers with post-World War I machine-age enthusiasts' utopian vision of the future city. Looking down from a skyscraper, as critics such as Thomas Tallmadge, Sheldon Cheney, and Claude Bragdon, and more recently, Carol Willis, Wanda Corn, and Anna Chave have observed, was as radical an avant-garde theme as the skyscraper itself.[64]

What these historians and critics have missed or ignored, however, is that Manhattan's aerial spectator in fact often soared even higher than observatories atop skyscrapers. What is of interest is how under an aviating spectator's mobile gaze not only did the skyscraper observatory itself become a spectacle, but Manhattan's *total* urban form was simplified into an artifact (**Fig. 12**). An airplane view of Manhattan complemented in the most profound sense of the word the very idea of futurity and modernity that Manhattan portrayed during the interwar period. Frequently published in interwar magazines of aviation,

---

[64] Thomas E. Tallmadge, *The Story of Architecture in America* (New York: W. W. Norton & Company, Inc., 1927), p. 296; Sheldon Cheney, *The New World Architecture* (New York: Longmans, 1930); Claude Bragdon, "The Shelton Hotel, New York," *Architectural Record* 58 (July 1925); Carol Willis, "Skyscraper Utopias: Visionary Urbanism in the 1920s," in Joseph Corn, ed., *Imagining Tomorrow* (Cambridge: The MIT Press, 1986); Anna C. Chave, "Who Will Paint New York? 'The World's New Art Center' and the Skyscraper Paintings of Gergia O'Keeffe," *American Art* 5 (Winter/Summer, 1991), pp. 87-107; Wanda M. Corn, "The Artist's New York: 1900-1930," in Thomas Bender and Carl E. Schorske, eds., *Budapest and New York, Studies in Metropolitan Transformation: 1870-1930* (New York: Russell Sage Foundation, 1994), "The New New York," *Art in America* 61 (July-August 1973), pp. 58-65, and "In Detail: Joseph Stella and *New York Interpreted*," *Portfolio*, vol. 4 (January/February 1982), pp. 40-45.

city planning, photography, and popular science, the aerial view of an airplane over Manhattan was cast as America's culminating symbol of progress. Witness the caption to such an image: "Almost a symbol of civilization is this picture -- the fantastic towers of a great city rearing from the earth, and above them a machine that flies -- new ways of living and traveling" (**Fig. 13**).[65] The image on the back cover of Le Corbusier's book *Aircraft* (1935) -- an airplane flying over Manhattan -- retained this doubly operative modernist myth, as Le Corbusier's gaze simultaneously focused on the two quintessentially modern phenomena: the airplane (new forms of mobility) and the vertical city (new forms of living). Such a double vision revealed not only the consistency of a dialogue between these two phenomena, but also the synergic functioning of their symbolism in instilling the notion of progress into modern life. Such an image was also co-opted by the avant-garde to demonstrate that futurity was not just about modern objects, but also about employing new methods of looking at them.

In the 1920s, when aerial photography came of age emerging as a special branch of photography, Manhattan was an overwhelmingly popular choice for photographers. Airplane viewing proved to be the primary optical tool to best comprehend Manhattan's vertical momentum. As early as 1920, the Fairchild Aerial Camera Corporation -- the first company in the United States to spearhead

---

[65] Harry F. Guggenheim, *The Seven Skies* (New York and London: G. P. Putnam's Sons, 1930), p.

aerial photography as a modern mapping industry -- took their camera aloft to produce a synthetic aerial photograph of Manhattan.[66] Aerial photographs of Manhattan found a wide and enthusiastic audience through various aviation, photography, and city design magazines during the 1920s and 1930s. Yet the proliferation of such images in mass media registered cultural significance much greater than a simple fascination with hardware-based aerial photography. Airplane views, real or imagined, offered a cultural telescope for multifaceted utopian imaginings and, eventually, for focusing on the very ideologies of progress.

Hugh Ferriss's *Metropolis* is a case in point.[67] Ferris propagated a cultic American fascination with skyscraper cities in the 1920s; but he also showed new ways of looking at them. While critics and historians have often discussed Ferriss as a "great architectural delineator," "a prophet of skyscraper," "a theorist of the urban future," and "the consummate artist of the new American metropolis," none has so far offered any critical analysis of Ferriss's articulation

---

36.

[66] See an excellent discussion on the development of aerial photography by Sherman M. Fairchild, the founder of the Fairchild Aerial Camera Corporation, "Aerial Photography, Its Development and Future," in *American Academy of Political and Social Science, Aviation*, vol. 131 (May 1927), pp. 49-55. In the next chapter, I will study in a more detailed fashion the development of aerial photography as a special branch of photography during the interwar period and its influence on visual culture, mapping, city planning, etc.

[67] Two most important source books for Hugh Ferriss's drawings are: first, his own book, *The Metropolis of Tomorrow* (New York: Princeton Architectural Press, 1986; originally published in 1929) and second, Jean Ferriss Leich (Ferriss's daughter), *Architectural Visions: The Drawings of Hugh Ferriss* (New York: Whitney Library of Design, 1980).

of a "new" 20th-century urban spectatorship (**Fig. 14**).[68] Ferriss's chiaroscuro drawings convincingly delineated the future city that influenced later urban thinkers such as Raymond Hood and Norman Bel Geddes; but more significantly, Ferriss's drawings reveal a new type of urban *flânerie*, as he narrated his *Metropolis* as nocturnal aerial journeys between and above the great canyons of the vertical city. While he reportedly produced many of his drawings from his rooftop studio on the seventeenth floor in the Architect's Building (101 Park Avenue), Ferriss's drawings resonate with the presence of an imagined airborne spectator who navigates the vertical cityscape at dizzying altitudes. An aviator's view, for Ferriss, was essentially the most useful graphic device for the representation of the future city.

In fact, whether one is flying or not, the aviator's viewpoint became a common visual technique of depicting future cities so much so that it formed an essential component of the very futurity that undergirded the conceptions of cities in the 1920s and 1930s. Examples abounded in newspapers, Sunday supplements, magazines, books, and films, as well as in gallery exhibitions and expositions. Although primarily concerned with the modern city's traffic

---

[68] Any publication on the visionary culture and futurism of 1920s America unfailingly mentions, or offers lengthy discussions on, Hugh Ferriss. The common theme of these discussions exclusively focuses on Ferriss as a great futurist who advanced the cause of the skyscraper as a quintessential American building type. Jean Ferriss Leich's "Hugh Ferriss: Introduction," in *Architectural Visions* and Carol Willis's "Drawing Towards Metropolis," in *The Metropolis of Tomorrow* are representative of this common approach.

circulation, the noted New York architect and "Manhattan theoretician," Harvey Wiley Corbett, employed an aviator's perspective to represent the vertical stratification of various modes of transportation within his futurist city (1925, **Fig.15**).[69] Corbett's ideas were already foreshadowed in Harry M. Pettit's futuristic rendering of Manhattan in the so-called *King's Views of New York* (1908, **Fig. 18**). Then there was another Manhattan enthusiast, among many, Raymond Hood, who with his visionary project "Manhattan 1950"(1931), reinforced the interwar penchant for the heroic aerial gaze in envisioning the future city.[70]

Film was another medium that represented Manhattan's urban space with the fantastic and spectacular uses of real or simulated aerial visions. That the urban spectator would increasingly become detached, both physically and existentially, from the familiar streetscape was a dominant theme in films. The German silent film *Metropolis* (1926) -- reportedly inspired by its director Fritz Lang's visit to New York in 1924 -- employs a moving and hovering Ferrissian gaze for the experience of an oppressively vertical city (**Fig. 17**). Often read as a critique of the cult of the machine, the film's story takes place in an unspecified

---

[69] For good discussions on, and visual documentations of, Harvey Wiley Corbett's work, see Rebecca Read Shanor, *The City that Never Was, Two Hundred Years of Fantastic and Fascinating Plans that Might have Changed the Face of New York City* (New York: Viking, 1988) pp. 16-23; Koolhaas, *Delirious New York*, pp. 120-125.

[70] Published in "New York of the Future," special issue of *Creative Art* (August 1931), pp. 160-61.

future city where the inhabitants are tormented by technological tyranny.[71] Yet Lang's method of looking at the city was inspired by one of the technological obsessions of the period: aerial navigation. As aerial commuters pass by in individual airships, monoplanes, and autogyros, an unseen spectator flies above, between, and through the futuristic skyscrapers of Lang's *Metropolis*. The lighthearted film *Just Imagine* (1930)--billed as the "first science-fiction musical"--also simulated a similar experience of the future city through the gaze of its aviating citizenry.[72] A representative festive scene in *Just Imagine* shows that the people of 1980's New York donning aviator's outfits socialize in the sky against the backdrop of a nine-level city containing 200-story skyscrapers. What seems interesting (and therefore demands further inquiry) about such films is that the directors ingenuously exploited flying abilities of the actors in these films as a way to facilitate new types of three-dimensional relationship between vertical urban forms and films' real audience. By having the camera airborne, the directors of these films sought to induce in the audience a feeling of flight and to bring the hitherto exclusive God's-eye point of view to a mass audience.

---

[71] For discussions on Fritz Lang's *Metropolis*, see Robert Stern, "The City on the Silver Screen: New York in Film," in *New York 1930*, pp. 79-80; Anthony Sutcliffe, "The Metropolis in Cinema," in *Metropolis 1890-1940*; Andreas Huyssen, "The Vamp and the Machine: Fritz Lang's Metropolis," in *After the Great Divide: Modernism, Mass Culture, Postmodernism* (Bloomington: Indiana University Press: 1986).

[72] I have seen this vintage film from Fox in the Film Department of the Museum of Modern Art (MoMA), New York. Reflecting the period's unlimited optimism in technology and the *future,*

Manhattan as their backdrop, the audience of these films "flew" across the barriers of time and glimpsed at the future from a high vantage point.

As these extravagant visual productions unabashedly suggest, Manhattan, or to be more specific an airplane view of Manhattan, offered not only an urban stage-set for this kind of audience manipulation, but also a broader operating framework for all sorts of fantastic speculations about what a future city would look like. The visual rhetoric that underlay such speculations relied on a consistent use of an aerial mode of seeing. As signifiers of that optical mode, airplanes invariably dotted the sky of the imagined future cities, suggesting a modernist parallel to painter-within-the-painting representational technique of 18th- and 19th-century landscape paintings. While the airplane was acclaimed as an engineering feat, in the avant-garde imagination it was the trope *par excellence* of a new viewpoint that promised and celebrated the modernist logic of rationality, transparency, and order. The view that the airplane afforded provided the interwar practitioners of modernist planning with the omnipotence of a *dieu voyeur* as they sought to reshape the future of cities.

Just Imagine introduced a new generation of aerial commuters who would reshape the concept of public space.

Chapter Two:

Of *Aeronitis*: An American Romance with the "Airplane Eye"

2.1 The Emergence of Aerial Photography and Associated Questions of Panopticality, Anamnesis, and Modernist Imagination

2.1 The Emergence of Aerial Photography and Associated Questions of Panopticality, Anamnesis, and Modernist Imagination

Aerial Age Weekly, a popular New York-based aviation magazine, ran a regular column entitled "Aeronitis" after World War I. In a bid to present its subject matter to the readership persuasively, the column always began with the following definition of "Aeronitis":

> Aeronitis is a pleasant, a decidedly infectious ailment, which makes its victims "flighty," mentally and physically. At times it has a pathologic, at times merely a psychologic foundation. It already has affected thousands; it will get the rest of the world in time. Its symptoms vary in each case and each victim has a different story to tell. When you finish this column YOU may be infected, and may have a story all of your own. If so, your contribution will be welcomed by your fellow AERONAUTS.[1]

With this preamble, the column solicited contributions from the public asking them to reflect on their experiences of, and views towards, flight. The often-exuberant anecdotal entries for the column were representative of an extensive and enthusiastic public participation in a topic that in real terms was more likely to attract only professionals and a privileged few who could embark on aerial joyrides in these early years of aviation. Despite its simple aspirations, the

[1] See one example of the column in *Aerial Age Weekly*, vol. 9, no. 1 (March 17, 1919), p. 214.

"Aeronitis" column proffers a cultural window on the extent to which the phenomenon of flight became a cause for mass celebration in interwar America. It demonstrates that Americans -- enamored of the heroics of aviators, such as the Wright brothers, Charles Lindbergh, Amelia Earhart, and many others -- became "aeronitic" in their overall cultural consciousness. A primary component of this consciousness was a fascination with the view from the airplane.

But the column's rhetorical style complicates what appears to be a straightforward fascination with the airplane. By tracing the physiological and psychological roots -- albeit oxymoronically (i.e., a "pleasant ailment") -- of the desire to fly, the column sought to frame an American fascination within vague existential terms. That is, the desire to fly was not a momentary obsession with a technological novelty, but rather a psycho-biological function of the mind and the body. It would not be a stretch to suggest that such a "definition" perhaps invokes (unintentionally I think) the Freudian *unconscious*. In fact, not only was Freud looming large during this time over Western society's self-reflexive archaeology of the mind, but Freud himself endeavored to do his own archaeology of the "dream of flying."[2] Only a year after the Frenchman Louis Blériot's 1909 flight across the English Channel -- a defining moment in aviation

[2] Freud had dealt extensively with the question of flying dreams in his seminal book, *The Interpretation of Dreams*, trans., James Strachey (New York: Avon Books, 1965; originally published in 1900), pp. 305-7, 428-30.

history that sparked pan-European political sentiments[3] -- Freud, in his monograph on Leonardo da Vinci (1910), speculated on the unconscious in the dream of flying. He hypothesized connections between da Vinci's recollection of a childhood erotic dream, his apparently celibate adulthood, and his lifelong fascination with human flight.[4] In hindsight, preposterous as it may sound, Freud declared: "[A]viation, which in our day is at last achieving its aim, has its infantile erotic roots."[5] Although Freud's argument -- that the flying dream is nothing other than the unconscious reflex of the boxed-up infantile fantasy of phallic erection, impressive as it is with its apparent suspension of the laws of gravity -- has now become an academic cliché, it nonetheless exemplifies broader attempts to link the "aeronitic" mindset to various deeply stratified cultural values and memories. My object here is not to elaborate on Freud's argument; rather, I refer to it only as a signpost reminding us of the necessity of addressing the aviator's viewpoint as a complex meeting point of disparate cultural forces.

---

[3] Stefan Zweig, *The World of Yesterday* (New York: The Viking Press, 1943), p. 196. Zweig describes the influence of Blériot's flight on Vienna's political and cultural landscape. Freud must have paid attention to such an influence while writing his book on Leonardo da Vinci. To return to Bl?riot's flight, here is what Zweig noted: "In Vienna we shouted with joy when Blériot flew over the Channel as if he had been our own hero; because of our pride in the successive triumphs of our technics, our science, a European community spirit, a European national consciousness was coming into being. How useless, we said to ourselves, are frontiers when any plane can fly over them with ease, how provincial and artificial are customs-duties, guards and border patrols, how incongruous in the spirit of these times which visibly seeks unity and world brotherhood."

[4] Sigmund Freud, *Leonardo da Vinci and A Memory of His Childhood*, trans. Alan Tyson and ed., James Strachey (New York and London: W. W. Norton & Co., 1961; originally published in 1910), pp. 86-87.

In this section, I will examine what it is that constitutes an aviator's (world)view. To do so, I will primarily look at the popular North American magazines and periodicals of aviation, science, and city design as they collectively offer an insight into the enthusiasm brought on by flight. I will seek to demonstrate that central to the American "airmindedness" during the 1920s and 1930s was a broadbased culture of discovering the world anew from the sky. Aviation and vision formed a single moment as aerial viewing and photography, aerial reconnaissance and mapping, and aerial reporting became integral parts of the interwar visual culture. I will elucidate how such optical practices became conceptual bases for various forms of modernist imaginings. It is my contention that without exploring the dynamics of this visual environment and bringing them to the broader contestations of modernity, the cultural and architectural significance of the Futurama and the unrestrained optimism that it generated among the exhibit's spectators cannot be fully discerned.

That aviation was closely allied with the development of a new vision was clearly marked as early as 1914 when World War I began,[6] and the all-seeing eye

---

[5] Freud, *Leonardo da Vinci and A Memory of His Childhood*, p. 87.

[6] A case in point is the vast body of wartime aerial photography by the famed American photographer Edward Steichen, who went to Europe as the commander of the aerial photographic division of the U.S. Expeditionary Force. A portion of the 1,300,000 prints from wartime reconnaissance photographs produced by Steichen (for "intelligence" purposes) ended up in his personal collection after the war. For a provocative essay on the wartime aerial photography as well as Steichen's post-war pioneering role in promoting aerial photography as a high art, see Allan Sekula, "The Instrumental Image: Steichen at War," in *Photography Against the*

of the aviator radically altered the age-old concept of the "front" as a ground-based war operation.[7] Military theoreticians became conscious that aeriality brought about the "total war [where] everything is a front," thereby demanding new optical adjustments for effective combat strategy.[8] Aerial photography was expected to provide wide coverage, detail, and evidence of infantry mobility to permit the construction of a viable theory of enemy strategy. Being able to observe the enemy positions from hitherto unattainable altitudes also signaled a symptomatic shift in target identification. The eye of the "military voyeur," to cite Paul Virilio, not only reached a high vantage point fulfilling a totalitarian dream of panopticality, and thereby feeding the infantry with elaborate information on enemy movements, but the eye itself also attained the function of a weapon as it could pinpoint the target to hit (**Fig. 18**).[9] Military strategists on both sides of the Atlantic promulgated such views, as aerial navigation increasingly enabled the complete coverage of the battleground and

---

Grain: Essays and Photo Works 1973-1983 (Halifax: The Press of the Nova Scotia College of Art and Design, 1984).

[7] See, for instance, *Basic Principles of Air Warfare*, ed., Aldershot (Gate and Polden, Ltd., 1927) which charts the influence of airpower on sea and land strategy by the army. Also see George F. Eliot, *Bombs Bursting in Air: The Influence of Air Power on International Relations* (New York: Reynal & Hitchcock, 1939); "Eyes and Teeth," *Flying* (March, 1915), pp. 438-40.

[8] Lieutenant-General von Metsch in *Wie w»rde ein neuer Krieg aussehen?* (What would a new war look like?) cited in Paul Virilio, *Speed and Politics, An Essay on Dromology*, trans., Mark Polizzotti (New York: Semiotext(e), 1986; originally published in 1977 as *Vitesse et Politique*), p. 75.

[9] Paul Virilio, *War and Cinema, The Logistics of Perception*, (originally published in French as *Guerre et cinéma* in 1984) trans., Patrick Camiller (London and New York: Verso, 1989), p. 26.

sophisticated methods of coordinating information between ground and airborne forces.[10]

An author in the American aviation magazine *Flying* succinctly wrote: "[W]ith the aeroplane everything is seen by the eye, nothing is left to guess," and "victory belonged to the commander who makes the best guess as to what is happening on the other side of the hill."[11] The conjunction of aviation and vision resulted in a commonplace characterization of the aviator as the new "eye" of the army. In fact, historians (of aviation) and critics have suggested that aviation technology owed its rapid development during the 1910s to the reconnaissance services urgently needed during World War I or indeed to "the reconnaissance aircraft itself, whose function was to supply ground troops with information, to direct artillery barrages or to take photographs."[12]

---

[10] See the editorial "Giving the Army Eyes" in the *New York World*, republished in *Flying* (June 1916), p. 205.

[11] Jacques Mortane, trans. F. Chandler, "The Evolution of Military Aviation in France," *Flying* (December 1912). For an elaborate discussion of this theme, see Andrew Brookes, *Photo Reconnaissance* (London: Ian Allan, 1975), p. 33.

[12] Virilio, *War and Cinema*, p. 17. Also see Roger Burlingame, *Engines of Democracy, Inventions and Society in Mature America* (New York: Charles Scribner's sons, 1940), pp. 405-408. Burlingame notes: "[T]he instruments of aeronautics have developed through their war uses. But for the World War of 1914 and the military incentive it bred, the airplane might have remained a plaything, its main use a dangerous sport. Because its military value was so great, governments throughout the world have heavily subsidized its costly technical development. Because of these subsidies great transport lines today cast their shadows over the entire earth. Because fighting is the most difficult exercise in which a plane may engage, extraordinary mobility has been produced. While the use of the airplane may be held partly responsible for the 1939 European conflict, it is certain that extremely rapid development in technic will be a direct result of war aviation as it was in the years of the craft's infancy." Two more essays that I found very useful for this observation are: Allan Sekula, "The Instrumental Image: Steichen at War," in *Photography*

In *The War in the Air* (1908) H. G. Wells had already provided the literary as well as graphic details of how twentieth-century warfare would be waged based on aerial espionage and aerial bombardment, both of which are basically the functions of eyes taking aim.[13] In Wells's narrative of a fictional German airship invasion, New York, the hub of the New World, loses its immunity, formerly guaranteed by its oceanic separation from the Old World (**Fig. 19**). The imagined destruction of New York by the aerial wrath of the German prince Karl Albert's airship, the *Vaterland*, as well as the later real destructions of World War II, have manifested the gamut of destructive optical possibilities that were introduced by aviation. Such possibilities eliminated, as Virilio noted, "Euclidean neutralization which was so acutely felt by ground troops in the trenches,"[14] that is, being able to observe from above enemy movements relieved the infantry soldier of anxiety resulting from his limited ground-based vision. World War I, in fact, offered an occasion to perfect aerial reconnaissance, which established the scientific bases for an effective aerial attack.[15]

Against the Grain and John Welchman, "Here There and Otherwise," *Artforum* 27, no. 1 (September 1988).

[13] H. G. Wells, *The War in the Air* (New York: Dover Publications, Inc., 1963, originally published in 1908).

[14] Virilio, *War and Cinema*, p. 18.

[15] For a broader discussion on this topic in a pessimistic tone, see Roger Burlingame, *Engines of Democracy, Inventions and Society in Mature America*, pp. 404-429. Also see, Albert Garcia Espuche, ed., *Cities from the Balloon to the Satellite* (Barcelona: Centre de Cultura Contemporania de Barcelona, Electa Espana, 1994), p. 17.

As the end of World War I precipitated a new era of commercial aviation and the United States ascended as a leading air power, aerial viewing and aerial photography became widespread cultural phenomena with a large American public. The war-time perception of the airplane as a fearsome machine that wrought destruction from above was partially supplanted by a more optimistic view of it as a new tool for certain civilian activities.[16] The vast practical experience of the wartime pilots was channeled into peacetime activities of aerial survey, mapping, and photography, commercial transportation, and continental mail delivery. The rapid growth of sophisticated cameras solely for aerial photography ushered in new methods of surveying geography, topography, agricultural production, and urban organisms and their evolutionary patterns. Publications, both practical and speculative, on the contributions of aerial survey to terrain feature analysis, map-making, and demarcating government jurisdiction over land areas abounded during the 1920s and 1930s.

In the United States a vast program of air-mapping uncharted territories of the continent had a broad functional as well as political appeal. For example, as early as 1924, the method of making maps by aerial survey, so as to lay out high tension power and transmission lines without arousing the suspicion of

---

[16] See, for instance, James H. Hare, "Aerial Photography--A New Art," *Flying* (May, 1924); "Airplane Eyes Used for Map Making," *Scientific American* (Vol. 136, April, 1927); *Map Reconnaissance, A Practical Treatise on Map Reading, Interpretation of Aerial Photographs and Military Sketching* (National Service Publishing Co., Washington, D. C., 1930).

landowners that a right-of-way was being planned, proved immensely successful.[17] In a frenzied rush, governmental agencies and private companies sought to demarcate their property and "sphere of influence" with the aid of the increasingly sophisticated apparatus of aerial photography. In 1923, a 2000-square-mile survey of the Tennessee River Valley by the United States War Department was successfully carried out. Around the same time, aerial photography was extensively used for harbor mapping in Boston and New Orleans. Various states deployed the aerial survey method for making new city maps as well as bettering existing ones to aid traffic studies and taxation analysis, and for redeveloping the city infrastructure, landscaping of parks and urban spaces, and formulating zoning determinations.[18] New York, Kansas City, and Newark were among the first municipalities to use aerial photography for such various state programs. It became readily apparent that in regions where difficulties of topography, climate, and absence of water access hindered the efficient maneuvering of land surveyors, mapping could be expedited by aerial photography. The aerial survey method literally rendered unnecessary the hitherto arduous task of traversing high mountain ranges, deep canyons, desert

---

[17] Crockett A. Harrison, "Making Maps from the Air," in *MIT Technology Review* (December 1930), pp. 127-30, 149-50.

[18] In this regard, the development of *photogrammetry* (the science of the measurement of ground distances and elevations on aerial photographs) must be noted. Photogrammetry focuses on the process of accurate "picture measuring" and of making precise mosaic, planimetric, or contour maps from aerial photographs.

wastelands, and large swamps. Even by 1923, sixty percent of the United States landmass still remained unmapped, a fact that led Congress to propose the Temple Bill that required the aerial survey of 1,800,000 square miles in twenty years.[19] The Federal government's extensive program for aerial mapping of its own areas bolstered during the 1920s a renewed sense of consolidation of its territorial jurisdiction.

One of the pioneering American companies to promote aerial photography as a specialty was the New York-based Fairchild Aerial Camera Corporation, founded in 1920 by Sherman Mills Fairchild (1896-1971).[20] During World War I, various types of cameras for aerial photography had already existed, but they produced highly distorted photographs due to slow shutter speeds that could not keep up with the movement of the airplane. It was Fairchild who, in 1920, developed the first high speed, between-the-lens-shutter, and "hands-free" cameras specifically for distortion-free aerial photography; they soon became standard.[21] In 1926, Fairchild even developed an airplane

---

[19] C. H. Birdseye, "Aerial Mapping by the Geological Survey," *Aerial Age* (May, 1923), pp. 230-32. Birdseye was chief topographic engineer of the U.S. Geological Survey.

[20] In 1971, on the fiftieth anniversary of the Fairchild Corporation, the Smithsonian Institution honored Sherman Fairchild as a pioneer in the aviation industry. Fairchild comes from a well-known New York family. His father was Republican Congressman George Winthrop Fairchild, one of the founders of International Business Machines (IBM), and the company's first president. Sherman Fairchild attended Harvard and Columbia University, yet never received degrees from any of these universities.

[21] Sherman M. Fairchild, "Aerial Photography, Its Development and Future," *American Academy of Political and Social Science, Aviation* (vol. 131, May 1927).

specifically for reconnaissance flights -- an advanced monoplane equipped with a stable camera platform allowing excellent visibility (**Fig. 20**).

An observer-photographer no longer was a prerequisite for the camera operation; the autonomous "airplane eye" outgrew the limitations imposed by human error, and became virtually a mechanical extension of the aviator's already-potent eye. Fairchild noted with a heroic overtone: "Merely the 'twist of the wrist' in setting the dial of the intervalometer on the instrument board, enables the pilot to 'shoot' an entire city from an altitude of six miles, unheard and unseen."[22] A Harvard and Columbia University dropout, Fairchild was not a typical inventor who would simply stop after successfully marketing his product. He buttressed his invention by often contributing scholarly writing not only about the technical efficiency of his equipment, but also about the future in which it would play a pivotal role. In a highly optimistic article in 1927, Fairchild prophesied the possible contributions that aerial mapping would make, ranging from agricultural forecasting to real estate value assessment to the upgrading of urban infrastructure:

> The many uses for the aerial maps are practically unlimited. From them the hydraulic engineer can locate potential power sites. The department of forestry can interpret them accurately, locate fire towers, mark fire lanes, and apportion ranger patrols. State Highway departments will now be able to plan speedily and accurately new main arteries. From these maps the agricultural departments can figure the percentage of land under cultivation, mark waste lands for reclamation, and thus assure maximum agricultural efficiency for the

[22] Fairchild, "Aerial Photography, Its Development and Future," pp. 49-50.

> entire state. The problem of adequate water supply for large metropolitan areas will be solved by the most intensive study of aerial maps for the logical locations of future reservoirs and basins.
> Individual cities and towns also benefit greatly from aerial maps, their various departments adapting them to their respective needs. A single glance will show the necessity of widening certain thoroughfares at strategic points, determine better parking facilities for motorcars, plot layouts for new streets and boulevards, and tell, without visiting the location, whether or not property values make condemnation proceedings prohibitive. The board of tax assessors can conclusively point out the factors of improvement which helped to increase the value of a citizen's property. The city planning and zoning departments can also do their work more rapidly and intelligently, because all factors pertaining to their particular problems are registered photographically and to scale, covering the entire city.[23]

Although Fairchild's excessively hopeful prophecy might now strike us both as astute marketing propaganda for his product and as technological messianism typical of the 1920s, his unfettered confidence in the "single glance" of the airplane eye solving a wide range of "mapping" problems reflected interwar America's extensive practical application of aviation technology.

The Fairchild Aerial Camera Corporation's 1924 aerial mapping of all five boroughs of New York City not only justified aerial documentation of cities as a full-fledged mapping industry, but also signaled the emergence of a lucrative mass market for new views of familiar urban spaces. As a point in passing, it was the Fairchild Aerial Surveys, Inc. (a subsidiary of Fairchild Aviation Corporation) that provided Norman Bel Geddes with aerial photographs of

various regions of the United States, views that Bel Geddes subsequently used for a realistic geographic representation of the Futurama.[24] During the 1920s and 1930s, cities and their landmarks became favorite objects for aerial photographers, feeding an incessant public desire to view and review known urban spaces and their markers from the aviator's perspective. Companies and agencies like Fairchild Aerial Camera Corporation, Curtiss Flying Services, Inc., the U. S. Army Air Service, the U. S. Navy, and others frequently supplied aerial photographs of cityscapes and landmarks to such journals as *Aerial Age Weekly, Flying, Air Travel News, Aviation, Aviator, Craftsmen Aero News, American City Magazine, Scientific American, National Geographic Magazine,* and *Technology Review.*

The cover page of the September 13th issue of *Aerial Age Weekly* in 1920 shows a Fairchild aerial photograph of an important urban node of Manhattan, with the following caption: "Airscape of Fifth Avenue and Fifty-ninth Street, Showing the Plaza Hotel and Central Park South"(**Fig. 21**).[25] As the aerial photographs by the Universal Film Company in the October 1916 issue of *Flying* demonstrate, Brooklyn and Manhattan Bridges, and the Statue of Liberty

---

[23] Fairchild, "Aerial Photography, Its Development and Future," pp. 50-51. Also see, Sherman M. Faichild, *Winged Surveyors: What Aerial Photography is Doing for Industry* (New York: Fairchild Aerial Camera Corporation, 1922).

[24] Norman Bel Geddes Collection, File 381.42, Harry Ransom Humanities Research Center, UT Austin.

[25] *Aerial Age Weekly*, vol. 12, no. 1 (September 13, 1920).

represent a new sense of scale and urban morphology under the aviator's commanding aerial inquiry (**Fig. 22**).[26] In fact, this perceptual transformation due to the loss of scale and visual miniaturization of urban elements was also closely allied with a subjective transformation and a sense of self-empowerment. The Statue of Liberty from the aviator's point of view, then, ceases to evoke the same emotive sense of monumentality experienced by an awestruck earthbound observer in front of it.

Similarly, the United States Capitol -- peculiarly rendered "toy-like" by the gaze of the aviator -- loses the sense of political authority instituted through its grandiose architectural form (**Fig. 23**).[27] When they endeavored to enlarge the Capitol's dome and wings in the 1850s and 1860s to reinvigorate the American icon's powerful political symbolism, the architects Thomas U. Walter and Montgomery C. Meigs would have dreaded such an optical effect upon the Capitol's earthbound spectators, intended to be awed by its sheer size, scale, and bulk.[28] Heroicizing the aviator's perspective, the caption to the Capitol photograph in *Aerial Age* (1923) celebrates the optical possibilities that reposition

---

[26] *Flying* (October, 1916), p. 381.

[27] This aerial photograph of the Capitol building was published as the frontispiece of an ambiguously titled article, "Aviation and the Feminine Touch," by Otto Praeger in *Aerial Age* (January, 1923), p. 5.

[28] For a good discussion of the United States Capitol's political symbolism associated with its architectural form, see Pamela Scott, *Temple of Liberty, Building the Capitol for a New Nation* (New York and Oxford: Oxford Univeristy Press, 1995; published in cooperation with the Library of Congress, Washington, D. C.), pp. 95-102. Also see Donald R. Kennon, ed., *The United States*

the Capitol not within its self-referential architectural aura, but within the grand scope of the French planner Pierre Charles L'Enfant's larger urban design: "Only from the air can this extraordinary detailed geometric planning be seen...The Capitol itself is one of the finest examples of balanced architectural planning in the world." In the 1790s, L'Enfant must have imagined the aviator's optical angle as if he were a god, envisioning a grandiose axial design for the Capital, a view no ordinary person could have seen from the ground.[29] But when aviation made that imagined angle a reality, the emotive impact of the expansive vista on the ordinary seer was huge: it allowed one to view the Capital plan through L'Enfant's god-like eyes. At stake in the aerial photographs discussed above was the construction of a new type of spectator whose gaze subjects powerful architectural symbols to a set of spatial reinterpretations.[30]

Capitol, Designing and Decorating a National Icon (Athens, Ohio: Ohio University Press, 2000; published for the United States Capitol Historical Society).

[29] For L'Enfant's "Plan of the City of Washington" (1792), see Pamela Scott, *Temple of Liberty*, pp. 21-25.

[30] An interesting discussion of this theme is in Frank White, *The Overview Effect, Space Exploration and Human Evolution* (Boston: Houghton Mifflin Company, 1987), pp. 3-5. By the "overview effect," White means the peculiar psychological effect experienced by the aerial gazer as a result of hitherto unrealizable viewing angles. White further shows how experiences such as going above the earth and viewing it from space have profoundly affected space travelers' perceptions of themselves, their world, and the future. In fact, White begins *The Overview Effect* by narrating his own aerial experience of the Capitol Building: –As the plane flew north of Washington, D.C., I found myself looking down at the Capitol Building and Washington Monument. From thirty thousand feet, they looked like little toys sparkling in the sunshine. From that altitude, all of Washington looked small and insignificant. However, I knew that people down there were making life and death decisions on my behalf and taking themselves very seriously as they did so. From high in the jet stream, it seemed absurd that they could have an impact on my life. It was like ants making laws for humans. On the other hand, I knew that it was all a matter of perspective. When the plane landed, everyone on it would act just like the people over whom we

Aerial views of dense European, South American, and North African cities and their landmarks also abounded in the pages of North American periodicals and popular magazines during the 1920s and 1930s. These images provided the New World a "new" image of the Old World as well as of Europe's remote colonial territories. A typical caption to the aerial view of "the *Arc de Triomphe,* centered at the Etoile, with the grand avenues radiating to distant vistas" mentions "only from an airplane can this beautiful aspect of the Arc be realized" (**Fig. 24**).[31] Not only does this type of aerial image bring to the public domain the formerly exclusive gaze of the aviator, thereby making it a market commodity, but it also offers new ways of articulating architectural knowledge. Essays and captions accompanying aerial photographs of historic cities were often tinged with an ideological spin: the aerial viewer was projected as a type of voyeur or a clairvoyant whose transhistorical gaze follows a veritable reverse itinerary -- a sort of time travel -- tracing the evolutionary trajectory of the urban organism. From an altitude, the aerial viewer tends not to see individual urban elements, but an abstract *pattern* -- an historico-spatial framework intelligible only from a God's-eye point of view -- within which disparate urban elements situate and multiply themselves over a long span of time.

---

flew. This line of thought led to a simple but important realization: mental processes and views of life cannot be separated from physical location. Our 'world view' as a conceptual framework depends quite literally on our view of the world from a physical place in the universe."

[31] *Aerial Age* (January, 1923), p. 7.

It is with this "marvelous mitigation of altitude," as Roland Barthes notes, that the aerial eye grants "an incomparable power of intellection," that is, to be able to see the very inner logic of an urban phenomenon's trans-historical formation.[32] For Barthes, the bird's-eye view "corresponds to a new sensibility of vision; in the past, to travel (we may recall certain--admirable, moreover--promenades of Rousseau) was to be thrust into the midst of sensation, to perceive only a kind of tidal wave of things; the bird's-eye view, on the contrary, permits us to transcend sensation and to see things *in their structure*. Hence it is the advent of a new perception, of an intellectualist mode," which offers a new epistemological basis for urban imagination.[33] Following Barthes's line of reasoning, I will argue that the airplane view simultaneously denotes a new optical mode and the ethos of a modernist rationale for historicizing. In a chapter about materials and their epidermic behavior in his book *The New Vision*, Lazlo Moholy-Nagy offers a poignant example of this double meaning. Seeking to interpret an upclose portrait of the heavily textured face of an allegedly 130-year old man, Moholy-Nagy argues that "[t]he photograph of the old man is essentially a time-compressing view of the alterations in the epidermis: an

---

[32] Roland Barthes, *The Eiffel Tower and Other Mythologies*, trans., Richard Howard (Berkeley: University of California Press, 1997; originally published in 1979), pp. 8-9.
[33] Ibid., p. 9.

airplane view of time" (**Fig. 25**).[34] What Moholy-Nagy proposes here is an allegorical logic of the eye's transhistorical mobility embedded in his notion of the airplane view. An "airplane view of time" is not so much about flying and seeing, as about repositioning oneself at a vantage point from which to see the abstract continuum of time as a synoptic picture. To take an airplane view of the old man's face, then, is to negotiate a historicizing analysis of his organic growth, from infancy to final maturity.

An apt urban analog of this analysis could be found in an aerial view of Pompeii, published in an early edition of *Flying* (**Fig. 26**, 1914).[35] Highlighting a surreal vertical view of Pompeii's roofless cityscape, the photograph's caption reads: "A photograph that spans twenty centuries--Pompeii from an airship." As much as it lays bare Pompeii's urban logic around the Forum, the photograph also suggests the reconstruction of its aerialized spectator as a critical historian whose gaze engages in conceptual time travel back to the pre-Vesuvius Pompeii and envisions how the city functioned in its original condition. The aerialized spectator visually resolves Pompeii's architectural labyrinth and negotiates a self-conscious historiographic inquiry into how Pompeii's key urban markers create a spatial grid over time. The eye follows an architectural itinerary: at the head of

---

[34] László Moholy-Nagy, *The New Vision and Abstract of an Artist*, trans., Daphne M. Hoffman (New York: George Wittenborn, Inc., 1928), p. 26.

[35] The aerial photograph of Pompeii accompanies the article "Aerial Photography--A New Art" by James H. Hare in *Flying* (May, 1914), p. 102.

the Forum is the Temple of Jupiter, to its east stands the *macellum*, or the meat market, next to that is the Sanctuary of the Lares of the city, then the Temple of Vespasian, and at the corner of the Forum is the *comitium*, also known as the School of Verna, and so on. But how could this be a historiographic inquiry?

I would like to return to Barthes to address this question. "To perceive Paris from above is infallibly to imagine a history," says Barthes.[36] Although Barthes's point of contention involves the view from the Eiffel Tower—the perch that famously stirred Hugo's and Michelet's literary imagination—the aviator's perspective is the culmination of what Barthes ruminates upon as aerial viewing's historical imagination. Barthes proposes that "from the top of the Tower, the mind finds itself dreaming of the mutation of the landscape which it has before its eyes; through the astonishment of space, it plunges into the mystery of time, lets itself be affected by a kind of spontaneous anamnesis."[37] He goes on to suggest that with a single gaze, Paris's aerial spectator could imagine the city's four temporal/historical stratifications: the first is that of prehistory when Paris emerged as a collection of a few community nodes out of swampy lands; the second is that of the Middle Ages when Notre-Dame rose to pierce the City's sober horizontality; the third is that of the period from the Monarchy to the Empire, a transition the *Invalides* and the *Arc de Triomple* chronicle; and

---

[36] Roland Barthes, *The Eiffel Tower and Other Mythologies*, p. 11.

finally, that of modern Paris marked by futuristic towers like the UNESCO and Radio-Télévision buildings.[38] Once the eye imagined these markers of history/urbanscape matrix, as Barthes tells us, the aerial spectator perceives how the voids of time and of space are filled up to produce what now exists as real and current in front of the eye. Hence at the end, what we have is a conceptual spectator-historian who lays bare an urban organism's temporal logic of growth. With a Cartesian celebration of the power of sight, Barthes's "model" of the aerial eye's historical imagination offers a useful theoretical explanation for the heroic sentiments that seemed to have tinctured the typical aerial photographs of the 1920s and 1930s. When the caption to the Pompeii aerial photograph boasts that the view "spans twenty centuries," it in fact succinctly captures the psychology of the aerial spectator's anamnestic inquiry.

It might be antithetical, however, to say that historical imagination alone produced the modernist appeal of aerial viewing. I contend that in aerial viewing, the apparent dichotomy between historical imagination and the modernist dream of a utopia witnessed its self-recasting as a sort of dialectic that animated the visionary aesthetes during the interwar era. The aerial eye's historical imagination—although not always sanguine as in the case of Le

---

[37] Ibid., p. 11.
[38] Ibid., p. 11.

Corbusier[39]--at times sanctioned the very basis for speculation on futurist cities. During the 1920s and 1930s, the romanticized idea that aerial viewing not only enabled a synoptic vision of existing cities, but also would allow designing a utopia that would, in turn, bring about a harmonious society, was fairly common in a wide range of magazines and periodicals (aeronautical, popular science, city design, etc.), and books.

In his book *The Social Effects of Aviation* (1946), the historian of technology William Fielding Ogburn encapsulated this overtly hopeful view.[40] Although Ogburn's was not a study in aerial vision *per se*, he nonetheless summarized the sentiments of an optimistic epoch. One of his primary concerns was how the configuration of future cities—alongside many other social and cultural issues

---

[39] Le Corbusier, *Aircraft* (New York: The Studio Publications Inc., 1935), pp. 10-13. The French title of this book is "L'avion accuse" (the plane indicts), by which Le Corbusier means that the airplane eye sees and indicts the *fin-de-siecle* metropolis as the chaotic outcome of centuries of misplanning, misuse, and greed. For Le Corbusier, the airplane eye's historical inquiry into the city's evolution is paradoxically self-defeating, that is, to imagine history is to feel the ethical urge to abolish once and for all the *raison d'être* of the city's evolutionary basis. Le Corbusier declares: –With its eagle eye the airplane looks at the city. It looks at London, Paris, Berlin, New York, Barcelona, Algiers, Buenos Aires, São Paulo. Alas, what a sorry account! The airplane reveals this fact: that men have built cities for men, not in order to give them pleasure, to content them, to make them happy, *but to make money!* The airplane itself scrutinizes, acts quickly, sees quickly, does not get tired; and more, it gets to the heart of the cruel reality--with its eagle eye it penetrates the misery of towns, and there are photographs for those who have not the courage to go and see things from above for themselves. Such are the great cities of the world, those of the nineteenth century, bustling, cruel, heartless, and money-grabbing. The airplane instills, above all, a new conscience, the modern conscience. Cities, with their misery, must be torn down. They must be largely destroyed and fresh cities built."

[40] William Fielding Ogburn, *The Social Effects of Aviation* (Boston: Houghton Mifflin, 1946), pp. 340-362. Ogburn's general thesis is that aviation would continue to speed up growth of –our social heritage" by helping to build –an efficient size of the state" and by providing government

ranging from family recreation to religion to crime control to international relations—would depend on the aerial mobility of an efficient future society. For instance, Ogburn argued that aerial mapping would help to bring about new cities in areas that have no easy land or water access (Brasilia was in fact sited from the airplane); that personalized flying machines would change the form of the house as necessitated by people's vertical mobility; and that ascension would enable people to transcend "the petty cares of everyday life," and would usher in a new communion between "men" and their cosmic universe. Like many of his contemporaries, Ogburn was of course "(mis)guided" by what Joseph Corn has called the "fallacy of the technological fix," that is, the deterministic belief that technology would strengthen old social values while transforming the erroneous existing world into a utopia.[41]

This polemicization of aeriality, however, jars us into looking beyond the buoyant beliefs in technology's fixing power. While there were frequent practical prophecies of how the utopia would be designed by the omnipotent aerial planner, the theme of the aerial vision was often fused with a vaguely defined spectatorial philosophy linked to a moralized gaze from above seeking to discipline all social and moral chaos. To see from above is also to seek the

---

with–opportunities for greater efficiency and usefulness." Ogburn served as the first president of the Society for the History of Technology (SHOT).

[41] Joseph Corn, *The Winged Gospel: America's Romance with Aviation, 1900-1950* (New York: Oxford University Press, 1983), pp. 219-223.

truth in its entirety—an essential pursuit for moral integrity—as one author in the *Flying* magazine tells us:

> "To know by wholes," as Plato says, is the great point in education. "Artistic perception is not satisfied with isolated facts. It demands that pervading spirit which can exist only through the proper relation of part to part. The power of seeing entireties, the power of getting at the logic of things, is the vital point in education"; the vision of "the aerial eye" to know a truth when you see it, to distinguish a truth from a fake...Education wants vision from great heights.[42]

This type of heady idealism was common when people narrated their experience of flight in aeronautical magazines. Consider, for instance, another article -- or a "sermon," as *Craftsmen Aero News* calls it -- entitled "Seeing Things from Above" by a clergyman.[43] For this author, the aviator's clear vision of the world is simply a reflection of his inner conscience, a moral authority that guides him to overcome difficult barriers, distance, narrow prejudice, and fear.

Was such a line of reasoning ideologically far from, for instance, the co-evolving Modernist metaphysics of the Bauhaus pedagogy that offered the most

---

[42] Mary E. Burt, "Aeronautics Will Develop a Broader Vision," *Flying* (New York, vol. IV, October, 1915). Burt's argument is that aerial vision could be a conceptual tool for high school education in which a broader perspective on world affairs should be fostered. In fact, aeronautics education in North America was increasingly incorporated in the high school system toward the end of the 1920s with the belief that it would create, as Joseph Corn maintained, "the winged superchildren of tomorrow." See William F. Durand, *Aeronautics Education* (New York, 1928); "A Public School Course in Flying," *Western Flying* (Los Angeles, vol. IV, June, 1928); Congress Second Session, "Aviation Instruction Courses for Public Schools," *Senate Reports* (Report No. 1724, February 24, 1936), pp. 1-2; "Air Youth of America," Typescript in "Winthrop Rockefeller" file, American Institute of Aeronautics Papers, Box 107, Manuscript Division, Library of Congress; James Quillen, "Education, Aviation and Society," *Air Affairs* II (Winter, 1948).

[43] Clayton D. Russell, "Seeing Things from Above," *Craftsmen Aero News*, vol. I (September, 1937), pp.2, 7-8. For another example expressing similar philosophical views, see Marcella Holtkamp, "A Bit of Philosophy on Flying," *Air Travel News* III (August, 1929), pp. 21-22.

fertile ground for the aesthetic celebration of the aerial traveler's broad vision, or from the Russian painter Kasimir Malevich's "Suprematist" program? One of the most aviation-inspired avant-garde artists of the early 20th century, Malevich saw correlations between flight and his ideals for a non-objective art. His 1915 *Suprematist Composition: Airplane Flying* aestheticizes an aerial view into diagonals of rectangular shapes in a horizonless space, suggesting the expansiveness of the aerial eye's visual field (**Fig. 27**).[44] Calling such paintings "aerial Suprematism," Malevich drew parallels between flight's liberation of people from the earthly consciousness and his conception of Suprematism's perceived freedom from material possessions as well as its aesthetic abstraction of the spiritual. Both the clergyman's "seeing things from above" and Malevich's Suprematist abstraction shared a peculiar quasi-theosophical Modernist dream of liberation envisioned by the aerial eye.

In *The Non-Objective World* (1927) Malevich uses a number of aerial photographs of urban complexes which he captions "The environment ('reality') which stimulates the Suprematist," continuing to argue that "the environment corresponding to this new culture [of "non-objective Suprematism"] has been produced by the latest technology, and especially of aviation, so that one could

[44] *Kazimir Malevich 1878-1935* (published by The Armand Hammer Museum of Art and Cultural Center in association with the University of Washington Press, 1990), p. 73.

also refer to Suprematism as 'aeronautical'."[45] As part of his 1927 lectures explaining three key avant-garde movements -- Cubism, Futurism, and his own Suprematism -- Malevich produced a collage, a pedagogical chart demonstrating what he called "the environment of painterly sensations." Malevich juxtaposed reproductions of representative art works from each movement with newspaper clippings and photographs meant to justify the classification of these movements (**Fig. 28**). The *Suprematismus* column of the chart introduces a straightforward comparison between Malevich's own lithographs and an assemblage of aerial photographs of urban landscapes, deserts, and sea ports. Even the wondrous agent of aerial photography, the airplane, was also included in the chart.

Malevich's message is clear: the aerial eye's "real" abstraction of geography and urbanscapes into lines, shapes, and forms inspires a plethora of stylization in the Suprematist paintings. Interestingly, his *Suprematismus* collage (of aerial photographs minus his lithographs) is barely distinguishable from the pages of aerial survey books, aviation magazines, and city planning technical books, which were typically filled with abundant aerial photographs of urban and rural landscapes (**Fig. 29**).

---

[45] Kasimir Malevich, *The Non-Objective World*, trans., Howard Dearstyne (Chicago: Paul Theobald and Company, 1959; although originally published in 1927 in Russian, this first English edition was translated from the German edition), p. 25, 61. Malevich had struck a close intellectual relationship with the Bauhaus circle. In fact, *The Non-Objective World* was translated into German in 1927 as volume 11 of the series of Bauhaus books under the title of *Die Gegenstandslose Welt*. The Bauhaus pedagogue L. Hilberseimer wrote the introduction to the book.

Le Corbusier also makes similar comparisons in his book *Aircraft*, which is first and foremost an aerial photography scrapbook. Le Corbusier himself selected and laid out the various aerial photographs of subjects as diverse as a Dutch landscape, Philadelphia's downtown, Paris's *Place de l'Etoile*, Rio de Janeiro's waterfront, and the French Alps.[46] But why did Le Corbusier or Malevich embrace aerial photography with such enthusiasm? One simple answer to this question is that as aerial photographs became part of the mass culture during the 1920s, modernist theorists, architects, and artists saw great potential in them for the theorization of a modernist logic of vision. They frequently included aerial photographs in their books and manifestos to advance their own avant-garde programs. With *Aircraft*'s simple arrangement of aerial photographs borrowed from various magazines, books, personal collections, and archives, Le Corbusier characteristically sought, as did Malevich, to promote a larger cause of the Modernist crusade: a "New Vision" of the future. Providing caption after caption to aerial photographs, Le Corbusier attempted to justify the airplane eye's perceived association with "a new state of modern conscience...a new aesthetic."[47] I invoke the examples of Malevich and Le Corbusier to show that almost from the beginning of its history, aerial photography was associated

---

[46] For his book *Aircraft* (1935), Le Corbusier collected (and sorted) aerial photographs from the following sources: the files and archives of the magazines *L'Aeronautique, Flight, The Aeroplane,* the Italian Air Ministry in Rome, Aerofilms Ltd., Aero Service Corp., the Associated Press, etc. See the Acknowledgements in *Aircraft*.

with the development of the 20th-century modernist vision and aesthetics. And that association before long gave rise to occasions for philosophical reflexes—witness Ernest Hemingway's response to his first flight in 1922: "I began to understand Cubist painting."[48] Just as did the disciplines and practices of geology, history, cartography, and city planning, modernist aesthetics enthusiastically embraced aerial photography as a way to articulate the theoretical basis of a "new vision."

---

[47] Le Corbusier, *Aircraft*, caption no. 4.

[48] Cited in Beaumont Newhall, "Introduction" to *The View From Above: 125 Years of Aerial Photography*, Rupert Martin, ed., (London: The Photographers' Gallery, 1983), p. 8.

Chapter Three:

Exploring a Philosophy of Ascension:
Friedrich Nietzsche, H. G. Wells, and Le Corbusier

3.1 "We Aeronauts of the Intellect": Nietzsche's Winged Oneirism
3.2 The Flying Man as the Observer-Narrator-Visionary Hero in H. G. Wells's Novels
3.3 The Politics of *la loi du Méandre*: Le Corbusier in South America

Chapter Three
Exploring a Philosophy of Ascension:
Friedrich Nietzsche, H. G. Wells, and Le Corbusier.

In this chapter, I will endeavor to situate aerial viewing (as a particular historical practice) as well as the broader contestations of the aesthetic celebration of flight within what could be called "a philosophy of ascension." Such a philosophy was variously articulated in the works of Friedrich Nietzsche, H. G. Wells, and Le Corbusier -- from whom Norman Bel Geddes drew intellectual inspiration. These authors viewed ascension (in both the physical and conceptual sense of the word) as a mode of philosophical inquiry and as a manifestation of an advanced human evolutionary stage. Such views resonated with Bel Geddes's own philosophical proclivities, documented interest in evolution, and his aesthetic worldview. Bel Geddes was a self-taught artist, architect, planner, and intellectual.[1] Both out of genuine intellectual curiosity and as a way of fashioning an avant-garde persona for himself, he kept abreast of

[1] Since his childhood, Norman Bel Geddes witnessed his family's frequent relocation in several midwestern cities (he was born in Adrian, Michigan), as necessitated by his "affable but ineffectual" father's variety of jobs. These moves had an unsettling effect on Bel Geddes's early schooling, compounded by his family's tendency to rebel. Bel Geddes increasingly fell behind in school and never returned after being reprimanded and expelled from the ninth grade for drawing a derogatory cartoon of the school principal. As for formal education, this was as far as Bel Geddes could go. But his mother made a difference. A cultured woman and a teacher, Bel Geddes's mother instilled in him and his younger brother a passion for books, music, museums, and theater. One of the books Bel Geddes thoroughly read in his early years was the Christian Science founder Mary Baker Eddy's *Science and Health*. In New York, he used to frequent old-book stores and collect books on wide ranging subjects. For Bel Geddes's autobiographical notes, see his *Miracle in the Evening, An Autobiography*, ed., William Kelley (Garden City, New York:

major philosophical concerns and advanced design theories of the time. Bel Geddes's intellectual pursuits coincided with the avant-gardism of interwar New York. An active career in stage-set design from the late 1910s propelled Bel Geddes into New York's café society of intellectuals, socialites, and celebrities. He struck up friendships with diverse figures, ranging from the theater impresario Max Reinhardt to the photographer Alfred Stieglitz to the noted architectural/cultural critics Sheldon Cheney and Claude Bragdon.

Bel Geddes built a sizable personal library containing books on wide-ranging subjects.[2] The various aspects of his self-education that informed the philosophical basis of his multi-faceted design career may be studied through the books in his library, including those by Nietzsche, Wells, and Le Corbusier. Bel Geddes's absorption of the ideas of these authors, of course, did not take place only through his reading of their literary works. Cultural critics and historians have already identified the influences of these authors, in various degrees, on early 20th-century modernist culture as well as on figures, including Bel Geddes, who sought to project themselves as avant-garde. These authors figure prominently in Bel Geddes's impressive collection, and his close reading of them is reflected by his customary pencil lines, marking points of interest in the books

---

Doubleday & Company, Inc., 1960); Jeffrey L. Meikle, "Norman Bel Geddes: A Portrait" and Arthur Pulos, "Design Horizons," in *Rassegna* 60 (1994).

[2] This library is part of the Norman Bel Geddes Collection, housed at the Harry Ransom Humanities Research Center, the University of Texas at Austin.

of these authors. What follow are attempts to study these three authors individually, and to see how disparate "ascensional" themes in their works collectively informed Bel Geddes's idealized conception of the artist as an exclusive "Man of Tomorrow" *above* the ordinary.

3.1 "We Aeronauts of the Intellect": Nietzsche's Winged Oneirism

> We aeronauts of the intellect! All those daring birds that soar far and ever farther into space, will somewhere or other be certain to find themselves unable to continue their flight, and they will perch on a mast or some narrow ledge -- and will be grateful even for this miserable accommodation! But who could conclude from this that there was not an endless free space stretching far in front of them, and that they had flown as far as they possibly could? In the end, however, all our great teachers and predecessors have come to a standstill, and it is by no means in the noblest or most graceful attitude that their weariness has brought them to a pause: the same thing will happen to you and me! But what does this matter to either of us? Other birds will fly farther! Our minds and hopes vie with them far out and on high; they rise far above our heads and our failures, and from this height they look far into the distant horizon and see hundreds of birds much more powerful than we are, striving whither we ourselves have also striven, and where all is sea, sea, and nothing but sea![3]
>
> Nietzsche, *The Dawn of Day* (1881)

> Behold, I am a prophet of the lightning and a heavy drop from the cloud: but this lightning is called *Superman*.[4]
>
> Nietzsche, *Thus Spoke Zarathustra* (1883-1885)

---

[3] Friedrich Nietzsche, *The Dawn of Day*, trans., J. M. Kennedy (New York: Russel & Russel Inc., 1964; originally published in 1881), p. 394. Given that Nietzsche concludes *Dawn* with this "aphorism," one could argue the importance of an ascensional psyche that began to emerge strongly in Nietzsche's subsequent books including *Zarathustra*.

[4] Nietzsche, "Zarathustra's Prologue," *Thus Spoke Zarathustra* (*TSZ* henceforth) trans., R. J. Hollingdale (Middlesex, England and New York: Penguin Books, 1961), p. 45.

Bel Geddes's personal library contained three books by Nietzsche: *Thus Spake Zarathustra, A Book for All and None* (1911 edition); *Beyond Good and Evil* (1909 edition); and *Twilight of the Idols, or, How to Philosophise with the Hammer; The Anti-Christ; Notes to Zarathustra and Eternal Recurrence* (1911 edition). How and exactly when Bel Geddes was introduced to Nietzsche's writings cannot be supported by archival evidence.[5] But given that he personally came to know the German "Expressionist" architect Erich Mendelsohn, and that he owned books by Le Corbusier and Bruno Taut -- all "documented" Nietzscheans -- one can conjecture Bel Geddes's entrance to Nietzsche's sphere of influence around the early 1920s, when avant-gardism on both sides of the Atlantic bore a strong Nietzschean stamp.[6] Or one could even argue that Bel Geddes's interest in Nietzsche might have already been kindled through his interest in George Bernard Shaw's plays (along with those by Henrik Ibsen and Maurice

---

[5] For instance, Bel Geddes's copy of *Thus Spoke Zarathustra* bears the stamp that it belongs to his library without any specific date of its inclusion in Bel Geddes's collection.

[6] For Nietzsche's influence on the early 20th-century avant-garde artists and architects, see Wolfgang Pehnt, *Expressionist Architecture*, trans., J. A. Underwood and Edith Küstner (New York and Washington: Praeger Publishers, 1973); Fritz Neumeyer, *The Artless Word, Mies van der Rohe on the Building Art*, trans., Mark Jarzombek (Cambridge, MA: The MIT Press, 1991; originally published in 1986); Iain Boyd Whyte, *Bruno Taut and the Architecture of Activism* (Cambridge, England: Cambridge University Press, 1982); and Thomas S. Hines, *Richard Neutra and the Search for Modern Architecture* (New York and Oxford: Oxford University Press, 1982). An excellent group of articles on Nietzsche's influence on modernist architectural culture was produced from the 1994 symposium "Abbau--Neubau--Überbau: Nietzsche and 'An Architecture of Our Minds'." See Tilmann Buddensieg, "Architecture as Empty Form: Nietzsche and the Art of Building," Fritz Neumeyer, "Nietzsche and Modern Architecture," and Jean-Louis Cohen, "Le Corbusier's Nietzschean Metaphors," in *Nietzsche and "An Architecture of Our Minds"*, eds., Alexandre Kostka and Irving Wohlfarth (Los Angeles: The Getty Research Institute for the History of Art and the Humanities 1999).

Maeterlinck) during his pre-New York Detroit years between 1913 and 1916. Shaw's *Man and Superman* (1901-1903) -- a book also owned by Bel Geddes -- coined the term "superman" as a translation of Nietzsche's *Übermensch,* a figure conceived as a highly evolved form of *homo sapiens*.[7]

Could Bel Geddes's study of Shaw's "superman" be a catalyst for his interest in Nietzsche? Possibly, yet there are other seemingly direct connections that one could also speculate upon. During Mendelsohn's first American tour of 1924, Bel Geddes met him in New York and a mutual admiration resulted in further intellectual exchange.[8] Mendelsohn presented Bel Geddes with a copy of his recently published book *Structures and Sketches* (1924) and a sweeping sketch of his Einstein Tower. Bel Geddes's study of Mendelsohn's 1919 lecture on "The Problem of a New Architecture,"[9] in which Nietzschean rhetoric reverberated in Mendelsohn's calling for "an exalted feeling of liberation" from "inherited forms and traditions," must have led Bel Geddes to grasp the avant-garde's broader Nietzschean roots. As early as 1911, Mendelsohn proclaimed his Nietzschean bent through an enthusiastic reading of *The Birth of Tragedy* (1872) as well as Nietzsche's own criticism of his book fifteen years after its publication:

---

[7] George Bernard Shaw, *Man and Superman: A Comedy and a Philosophy* (New York: Brentano's, 1905).

[8] Jeffrey Meikle, "Norman Bel Geddes: A Portrait" in *Rassegna* 60 (1994).

> Fifteen years after the publication of the *Geburt* [Birth], this great spirit [Nietzsche] wrote this and similar things against himself. What of it! It is easy for the next generation, with the benefit of instruction, to say Yes and No to established dogmas. What stirs me is this youthful, effervescent strength, this joyous, wholehearted commitment to the pursuit of the ideal. He cares only for the struggle against all that is narrow and backward; art for him means the vital, incandescent, sacred freedom that wins the supreme prize, and is satisfied only with the best.
>
> When I read such torrents of feeling, I am glad not to be constrained by that chill, contemplative tranquillity that orders everything logically and critically and is incapable of appreciating the -- shall we say -- Dionysian impetus of this shining soul. AND ALL THAT WE DO COMES DOWN TO THIS, THAT WE EXTRACT FROM SOMETHING, HOWEVER TRIFLING, A TINY PARTICLE OF EXPERIENCE, which addresses and nurtures all that we are and desire, and strengthens the foundations of our humanity, and builds the edifice higher in technical design and artistic adornment.[10]

My emphasis on Nietzsche's influence on Mendelsohn, however, should not overshadow the fact that Nietzsche was a quintessential *provocateur* of several generations, who served as the court of appeal for many artists and architects of the early 20th century. From Henry van de Velde and Peter Behrens to F. T. Marinetti, Giorgio de Chirico, Bruno Taut, Mies van der Rohe, Ludwig Hilberseimer, August Endell, and Le Corbusier, all carried the Nietzschean torch with various heroic sentiments, setting academicism on fire, while seeking to expand aesthetic boundaries.[11] Zarathustra's prophecy of a Dionysian Age colored Expressionist architecture as well as the fundamental tenets of Bauhaus

---

[9] *Erich Mendelsohn, Complete Works of the Architect, Sketches Designs Buildings* (New York: Princeton Architectural Press, 1992; originally published in 1930), pp. 7-21.

[10] Quoted in Neumeyer, "Nietzsche and Modern Architecture," pp. 293-94. This quotation comes from the third and final letter Mendelsohn wrote to his future wife in 1911. In these letters, Mendelsohn recorded his deep enthusiasm that he experienced while reading Nietzsche.

pedagogy. *Thus Spoke Zarathustra* (1883-85) was a canonical text for the Expressionists,[12] while most avant-garde artists and architects one way or another drew upon it to sustain their own rhetorics of a New Age.[13]

My object here, however, is not to rehearse Nietzsche's much-noted influence on avant-garde artists and architects; architectural historians and critics like Wolfgang Pehnt, Iain Boyd Whyte, Thomas S. Hines, Fritz Neumeyer, Tilmann Buddensieg, and Jean-Louis Cohen, among others, have cogently shown the various contours of such an influence. At this point, it will suffice to say that Bel Geddes's familiarity with the European avant-garde scene -- from Expressionist architecture to Bauhaus, from Bruno Taut to Moholy-Nagy to Le Corbusier -- makes us aware of why and how Bel Geddes would also crave a Zarathustran indoctrination to advance his own fledgling design aspirations. In 1925 when, at the height of his theater-design career, Bel Geddes went to Paris to design sets for the play *Jeanne d'Arc,* he had not only come into direct contact with the European avant-garde -- one in which Nietzsche was still pulling strings

---

[11] Neumeyer, "Nietzsche and Modern Architecture."

[12] Wolfgang Pehnt, *Expressionist Architecture,* p. 41.

[13] Among many others, Le Corbusier read *Zarathustra* as early as 1908, see Cohen, "Le Corbusier's Nietzschean Metaphors," p. 311; Mendelsohn in 1911, Neumeyer, "Nietzsche and Modern Architecture," p. 293; Taut read it as early as 1904, Whyte, *Bruno Taut and the Architecture of Activism,* p. 85.

-- but also found the spirit there compatible with his own commitment to design as a cultural/political vehicle to a perfect utopia.[14]

Nietzsche opens up important philosophical avenues that can be used to address why the avant-garde embraced the phenomenon of ascension with a quasi-religious fervor. Limiting myself mostly to *Thus Spoke Zarathustra,* I focus on the idea that Nietzsche is fundamentally an "ascensional" philosopher, the philosopher of the mountains, summits, heights, verticality, and, most of all, of flights. Of *Zarathustra,* Nietzsche himself said: "This book, with a voice bridging centuries, is not only the highest book there is, the book that is truly characterized by the air of the heights--the whole fact of man lies beneath it at a tremendous distance..."[15] In the allegorical autobiographical tone of *Zarathustra,* Nietzsche narrates the story of his reclusive prophet. When he is thirty years old, Zarathustra exiles himself to the cave on the mountain summit, and after ten years he receives his epiphany there, comes down to the "market square" below, and announces the "death" of God and the advent of God's successor, the *Übermensch.*[16] Zarathustra always climbs up and down, alternating between his

---

[14] Norman Bel Geddes Collection, HRC, File No. 99 (*Jeanne d'Arc* File). Bel Geddes designed both the stage set and costume. Eva Le Gallienne produced the play with the patronage of the US Ambassador and the French Minister of Fine Arts. The play took place in the Porte St. Martin Theater in Paris from June 12 to July 9, 1925. During this trip, Bel Geddes had come to know about the Art Moderne exhibits at the Paris Exposition of Modern Decorative and Industrial Arts.

[15] Friedrich Nietzsche, *Ecce Homo,* trans., Walter Kaufmann (New York: Vintage Books, 1969; originally written in 1888 and first published in 1908), p. 219.

[16] For Zarathustra's story see Nietzsche, "Zarathustra's Prologue," *TSZ,* pp. 39-53.

exilic cave on top and the marketplace below. Up there he meditates on man's superhuman potential and down there he preaches to his unwilling disciples that "Man is something that must be overcome."[17] Up is where Zarathustra experiences freedom and down is where he encounters self-defeating moral bindings and prejudices. A summit "6000 feet beyond man and time"[18] stimulates new perspectives, whereas a valley represents mediocrity or everything that is "all too human." Zarathustra scales summit after summit and descends only to preach about the virtues of the *Übermensch*. What has not been emphasized in the analysis of Zarathustra's odyssey is a peculiar metaphysics of ascension -- an advocacy of flight as a form of defiance and deviance -- neatly woven within *Zarathustra*'s narrative structure. A few "aphorisms" from *Zarathustra* typify the broader framework of the book:

> Life wants to raise itself on high with pillars and steps; it wants to gaze into the far distance and out upon joyful splendour - *that* is why it needs height!
>
> And because it needs height, it needs steps and conflict between steps and those who climb them! Life wants to climb and in climbing overcome itself.[19]
>
> ...impatient to fly, to fly away -- that is my nature now: how should there not be something of the bird's nature in it![20]
>
> You...O Zarathustra, have wanted to behold the ground of things and their background: so you must climb above yourself - up and beyond, until you have even your stars *under* you![21]

---

[17] Nietzsche, "Zarathustra's Prologue," *TSZ*, p. 41.
[18] Nietzsche, *Ecce Homo*, p. 295.
[19] Nietzsche, "Of the Tarantulas," *TSZ*, p. 125.
[20] Nietzsche, "Of the Spirit of Gravity," *TSZ*, p. 210.

> To look down upon myself and even upon my stars: that alone would call my summit, that has remained for me as the *ultimate* summit![22]

Zarathustra is dotted with words that suggest an ascensional spirit permeating the entire book: "summit," "mountain," "climb," "ascend," "descend," "bird," "lightning," "gravity," "weightless," "flight," "wings," "wind," "dance," "eagle's eye," "pillar," "light," "lift," "rise," "air," "height," "ladder," etc. The plethora of such words point us to Zarathustra's perpetual pursuit of an aerial life where "the weight of all things must be determined anew."[23] Nietzsche's main project here is to see things from a fresh perspective without having to conform to *a priori* aesthetic and moral codes and restraints. But, of course, there is a hefty price to pay for obtaining that privileged perspective. One has to abandon the terrestrial abode, contemplate multiple paths, and ascend to heights outside of oneself. Only then, as Nietzsche tells us, comes the momentous self-discovery: "I came to my truth by diverse paths and in diverse ways: it was not upon a single ladder that I climbed to the height where my eyes survey my distances."[24] In the pure yet painfully cold air of a mountain summit, man attains a "higher body." But in Nietzsche's lexicon such

---

[21] Nietzsche, "The Wanderer," *TSZ*, p. 174.
[22] Nietzsche, "The Wanderer," *TSZ*, p. 174.
[23] Quoted in *A Nietzsche Reader*, translated with an introduction by R. J. Hollingdale (Middlesex, England and New York: Penguin Books, 1977), p. 235, (quoted from Nietzsche, *The Gay Science*, 1882).

a body, of course, refers not to the astral body of the angel or the mystic, but to a *living* body that is finally able to shed its moral weightiness, yet is able to rejoice at coming to terms with its human limitations. This is the premise from which the *Übermensch* draws his superhuman strength. Thus, Nietzsche's tenets in *Zarathustra* revolve around a core argument: to evaluate superhuman powers, it is imperative to be aerial, light, and capable of ascension.[25]

How does one explain Nietzsche's rhetoric of heights? Gaston Bachelard noted that although one is tempted to make an easy connection between Nietzsche's philosophy of ascension and his long stays at Sils Maria[26] (the village in Switzerland where Nietzsche claimed he first thought about Zarathustra in 1881), Nietzsche's imagination itself is

> more instructive than any experience. It radiates a climate of imaginary altitude. It leads us into a special, lyrical universe...It transforms the riches of the depths into the glory of the heights...He stretches *all* ethical forces between these imaginary poles, refusing any form of "progress" that is merely material and utilitarian and that would be merely horizontal

---

[24] Nietzsche, "Of the Spirit of Gravity," *TSZ*, p. 213.

[25] In his post-*Zarathustra* autobiography, *Ecce Homo*, Nietzsche reiterated his earlier fascination with the air and heights, and their relationship to his philosophy: "Those who can breathe the air of my writings know that it is an air of the heights, a *strong* air...Philosophy, as I have so far understood and lived it, means living voluntarily among ice and high mountains--seeking out everything strange and questionable in existence, everything so far placed under a ban by morality. Long experience, acquired in the course of such wanderings *in what is forbidden*, taught me to regard the causes that so far have prompted moralizing and idealizing in a very different light from what may seem desirable: the hidden history of the philosophers, the psychology of the great names, came to light for me." Nietzsche, *Ecce Homo*, p. 218.

[26] Nietzsche's short poem on Sils Maria appears in his *The Gay Science*, trans., Walter Kaufmann (New York: Vintage Books, 1974), p. 371. Nietzsche spent his summers from 1881 until 1888 (excepting only 1882) in Sils Maria, where he completed Part Two of *Zarathustra*. According to Kaufmann, with this poem Nietzsche announced his epiphany of Zarathustra.

> progress, with no capacity for modifying our weighty being. Nietzsche has put all his lyrical energy into exchanging what is heavy for what is light, the terrestrial for the aerial. He has made the abyss speak the language of the summits.[27]

While Bachelard's attempt to connect Nietzsche's ascensional philosophy to *archetypal* meanings associated with imaginary flights of thought (rather than to actual experience of the mountains) is tenable, it can only serve an initial stage in a more historically and politically contingent reading of Nietzsche's aeriality.

The metaphors of "air," "height," and "flight" that Nietzsche invoked after all became embroiled with the early 20th-century problematics of racial and sexual hierarchy.[28] The kind of weightlessness and loftiness Nietzsche spelled out in his philosophy engaged the avant-garde in thinking about the ideal superhero as a masculine creature (for this was an exclusively masculinist discourse) belonging to the uppermost strata of a verticalized classificatory system, or, in short, to the sky. Nietzsche was unequivocal about the birthplace of the *Übermensch*: "Behold, I am a prophet of the lightning and a heavy drop from the cloud: but this lightning is called *superman*." There could not have been

---

[27] Gaston Bachelard, *Air and Dreams, An Essay on the Imagination of Movement*, trans., Edith R. Farrell and C. Frederick Farrell (Dallas: The Dallas Institute Publications, 1988; originally published in French in 1943), p. 160.

[28] Nietzsche himself warned against using simplistic Darwinism to interpret the *Übermensch* as merely the most evolved "higher man." See the chapter, "Superman," (originally from *Ecce Homo*) in *A Nietzsche Reader*, trans., R. J. Hollingdale (Middlesex: Penguin Books, 1977), p. 248. Also see Alan Schrift, "Putting Nietzsche to Work: The Case of Gilles Deleuze," in *Nietzsche: A*

a better popular-culture interpretation of this theme than DC Comics' Superman, who literally flew into American consciousness during the 1930s, providing a wishful remedy for the troubled times of the Depression.

The Nietzschean metaphors (i.e., Zarathustra's relentless vertical journey, his "bird-like" nature, and his scorn for "the Spirit of Gravity") offered an operating framework within which to think about *weightlessness* of the body as a central component in the concept of the "New Man" that had gained wide currency in both European and American minds after World War I.[29] In general terms, the New Man may be defined as an ideological antidote to the imperiled male ego, caused by the early 20th-century sense of fragmentation, psychic discontent, and presumed racial degeneration in Western industrial society. Filtered through Darwinian evolutionary principles regarding the progress of species, the Nietzschean dream of the *Übermensch*, and *fin-de-siècle* utopianism, the New Man was the embodiment of the avant-garde's longing for an ideal hero. Against this background, the New Man was conceived to have a highly evolved, fit, and light body that would bolster beleaguered masculinity. The

---

Critical Reader, ed., Peter R. Sedgwick (Oxford and Cambridge: Blackwell Publishers, 1995), p. 262.

[29] See Ralph E. Flanders, "The New Age and the New Man," *Toward Civilization*, in Charles Beard, ed., (London: Longmans, Green, 1930), pp. 21-37; Michael S. Kimmel, *Manhood in America: A Cultural History* (New York: The Free Press, 1996); Anthony E. Rotundo, *American Manhood: Transformations in Masculinity from the Revolution to the Modern Era*, (New York: Basic Books, 1993); Wolfgang Pehnt, "The 'New Man' and the Architecture of the Twenties," in J. Fiedler, *Social Utopias of the Twenties: Bauhaus, Kibbutz and the Dream of the New Man* (Wupperthal: Muller &

Promethean idea, put simply, is that to usher in a new age, the New Man needed those physical attributes. A kind of weightlessness of the body then became the very trope of his dynamic mobility, needed to lead society down the path of progress. Thus the New Man symbolized a ritual of abstention, sacrifice, and self-denial by shedding all earthly weights to sustain his arduous task of pushing society ahead. Nietzsche's *weightlessness* is an allegory for man's self-liberation from *a priori* moralized codes of thought. Yet by examining Zarathustra's perpetual vertical pursuits, we can envision the literal anti-gravitational force that gave ideological potency to the body of Nietzsche's New Man: the *Übermensch*, a superman. It was hardly surprising, then, that aviation enthusiasts and aviation-minded avant-garde artists and architects sought to idealize the aviator with the Nietzschean metaphorics of ascension.

3.2 The "Flying Man" as the Observer-Narrator-Visionary Hero in H. G. Wells's Novels

One of the earliest essays with which H. G. Wells (1866-1946) inaugurated his literary career was an unsigned essay for the *Pall Mall Gazette* of December 8,

---

Busmann Press, 1995); and Alexandre Kostka, "Architecture of the "New Man": Nietzsche, Kessler, Beuys in *Nietzsche and "An Architecture of Our Minds."*

1893.[30] Entitled "The Advent of the Flying Man, An Inevitable Occurrence," the essay not only highlighted the beginning of a topic that spanned Wells's whole literary life, but also reflected how powered human flight -- even a decade before the Wright brothers' first flight demonstration in Kitty Hawk -- had already become part of the *fin-de-siècle* utopian (or dystopian) imagination. In his essay, Wells described flight experiments carried out thus far, for instance, those by the American scientist Samuel Pierpont Langley and the German mechanical engineer/aerial experimenter Otto Lilienthal and demanded "another Icarus" who would fulfill the hope for "the conquest of the air."

The most intriguing part of Wells's essay was a "Forecast" about a London of the absurdly distant year of 21000 A.D. Intriguing, because to narrate a future London, Wells employed a novel literary device: that is, to see the metropolis through the eyes of the "flying man" himself. With characteristic dramatization, Wells provided an "aerial" observation of London at the end of a working day:

> At the stroke of five, the daily business of thousands of men ceases, and forthwith a vast cloud of winged figures will begin to erupt from among the

[30] Founded in 1865 in England, the *Pall Mall Gazette* offered a forum for publishing substantial articles on political and social issues. In its checkered history, the *Pall Mall Gazette* embraced both a conservative agenda and radical spokesmanship. Under the tutelage of a radical journalist, William Stead, the newspaper began publishing a high percentage of human interest stories, mobilizing various social causes from the 1880s onward. Apart from Wells, some of the illustrious contributors include Matthew Arnold, John Ruskin, Oscar Wilde, and Rudyard Kipling. The *Pall Mall Gazette* was incorporated into the *Evening Standard* in 1923.

> grimy roofs of the crowded business houses, and hang for a moment eddying and circling in the air after cramping labours of the day. The dome of St. Paul's will be covered with the fathers and sons of suburban families, poising themselves for their homeward flight; they will cling to the Monument like bats, and obscure the outlines of every steeple. Then presently the vast crowd will begin to separate. One swarm will flap its way like homeward bound rooks in a long column northwards towards Willesden and Wembly Park and Pinner and Harrow; another westward to Richmond, Kingston, and Staines; another southward to Sutton, Dorking and Reigate. Each will carry his inseparable bag and umbrella beneath him, as an owl might carry a mouse. And so home to their rookeries and nests, where the domestic angel, her wings laid aside after shopping, has prepared the dinner of the day. And as paterfamilias swoops downward, little winged cherubs flutter up to meet him with shrill cries of "Papa, papa!"

I quote this fantastic Wellsian scene at length to underscore a particular type of literary technique that would increasingly inform Wells's later works. Beginning with *The Time Machine* (1895) through *When the Sleeper Wakes* (1899), *The First Men in the Moon* (1901), and *The War in the Air* (1908) to *The Shape of Things of Come* (1933), Wells consistently used, in various guises, the gaze of the "flying man" as a way to narrate his utopian or apocalyptic destinations (**Fig. 30**).[31]

In the Wellsian nomenclature, "another Icarus" was of course a synthesis of two mutually-inclusive stimuli of scientific utopias: first, flight as a futurist mode of human mobility and, second, the theory of evolution.[32] The idea is that

---

[31] The term "utopia" here need not be exclusively synonymous with the "ideal."

[32] Both of these stimuli left indelible marks on Wells's entire career. Wells extensively wrote about the political, social, and cultural impacts of aeronautics in, for instance, two of his important "prophesy" books from the 1920s, *A Year of Prophesying* (New York: Macmillan, 1925) and *The Way the World is Going: Guesses and Forecasts of the Year Ahead* (New York: Doubleday, Doran and Co., 1929). As for the second stimulus, Wells's indoctrination in evolutionary principles was quite direct. He was a student of one of Charles Darwin's vociferous champions, the biologist and ethicist Thomas Henry Huxley, at the London School of Normal Science. Wells

"man" would eventually be so evolved physically and mentally that he could fly at will like other avian creatures -- an idea that was to witness its most popular realization later in the hero of American comics, Superman. For Wells, an ape and a "flying man" are complementary concepts, representing only various stages on the evolutionary continuum. Thus, latent in the concept of the "flying man" are attempts to see an extreme limit of the evolutionary principles. As the science-fiction author and critic Thomas Disch notes, "The anxieties provoked by Darwinian nature, in which mankind is only a superior kind of ape, are dispelled by the vistas of outer space, through which whilom ape can soar in his new aspect as a 'superman'...[A]s a comic book hero, Superman is nothing less than a rocket ship in human form, a man of steel able to fly by sheer willpower anywhere in the universe and equipped with X-ray vision and all kinds of internal Star Wars weaponry."[33]

Wells, however, pushed the concept of the "flying man" further. Idealized, the "flying man" was for Wells also a Zarathustra-like vantage point from which to look at the future that awaits the world and *Homo sapiens*. As much as he championed -- more than anybody else in the early 20th century --

---

undertook a comprehensive literary exploration of Darwinian theory in his earliest essays, "The Chronic Argonauts" (1888) and "The Man of the Year Million" (1893). Wells's debt to Darwin and Huxley has been explored by literary critics such as, Leo Henkin, *Darwinism in the English Novel 1860-1910: The Impact of Evolution on Victorian Fiction* (New York: 1963) and Jack Williamson, *H. G. Wells: Critic of Progress* (Baltimore, MD: The Mirage Press, 1973).

the cause of human flight as a quintessentially modern phenomenon, Wells saw flight as a philosophical vantage from which to reflect upon what lay ahead for the modern industrial society. Wells's frequent literary deployment of aerial voyages -- either intercontinental or intergalactic -- served two simultaneous purposes. The first is that an aerial voyage undertaken by his protagonist, such as Bert Smallways in *The War in the Air,* essentially provided the futuristic glamor a science fiction during the early 20th-century could have required.[34] The second is that by having his protagonist embark on an imaginary and fantastic flight, Wells could "dodge" one of the central problems encountered in utopian fiction, namely how to *arrive* at the utopia itself in order for the protagonist to narrate it to the readership of here and now, i.e., "we."[35] It is the second component that I would like to explore further both within the context of the general problematics of the *fin-de-siècle* utopian literature and Wells's own novels to show that "a philosophy of ascension" informed the narrative strategy in Wells's fiction.

---

[33] Thomas M. Disch, *The Dreams Our Staff is Made Of, How Science Fiction Conquered the World* (New York: Touchstone, 1998), p. 62..

[34] I use the term "science fiction" here with the same ambiguity with which Wellsians have described Wells as an author of science fiction. Although the term has not been coined until 1926 (by Hugo Gernsback in *Amazing Stories*), literary critics of utopias, dystopias, and scientific romances have identified all the science-fiction ingredients in Wells's novels. Many even have called him the "father of modern science fiction." See, for instance, Frank McConnel, *The Science Fiction of H. G. Wells* (Oxford and New York: Oxford University Press, 1981), pp. 7-8; and Jack Williamson, *H. G. Wells: Critic of Progress* (Baltimore, MD: The Mirage Press, 1973), pp. 6-11.

[35] For theoretical framings of this problem, see Frederick E. Pratter, "The Mysterious Traveler in the Speculative Fiction of Howells and Twain," Jean Pfaelzer, "The Impact of Political Theory on Narrative Structures," and Arthur O. Lewis, "The Utopian Hero" in Kenneth M. Roemer, ed., *America as Utopia* (New York: Burt Franklin and Co., 1981).

Before delving into the details of the second component, however, I intend to address the first point briefly with a view to showing Wells's relation to America and America's location within his oeuvre, and, more particularly, his relation to Bel Geddes.

Wells's literary fame after the publication of *The War of the Worlds* (1898) -- with its interplanetary story of Martian invasion of the world -- attained an international dimension and earned him a wide American audience. The beginning of Wells's American popularity, ironically, was reflected by the unscrupulous copyright infringement of his story by the editors of the New York *Journal* and the Boston *Post.*[36] After buying the American serial rights for *The War of the Worlds,* the editor of the *Journal,* Arthur Brisbane, made wholesale changes to Wells's story.[37] Brisbane shifted the target of the Martian attack from Wells's native England to New York (and in the *Post* version, to Boston) to profitably engage Americans by providing a degree of immediacy to their fear of alien invasion. Wells protested, but no redress eventually took place. A decade later, however, in *The War in the Air,* Wells himself chose New York as the site for a deadly German dirigible invasion, precisely because New York offered him the

---

[36] I. F. Clark, *The Pattern of Expectation 1644-2001* (New York: Basic Books, 1979), pp. 112-114.

[37] The novel had already been serialized simultaneously in *Pearson's Magazine* and in the American *Cosmopolitan* in 1897.

most futuristic urban theater for staging an aerial warfare waged by airships.[38] As Wells's novel shows, the literary consideration of target proceeded from the futurity of the airship itself. If the airship in 1908 posed itself as *the* sign of futurity (and destruction), then its arena of operation could only be matched by a "modern Babylon" like New York.[39] By 1926, with the publication of the first science-fiction magazine *Amazing Stories* by Hugo Gernsback, Wells became a household name in America.[40] Between 1926 and 1930 alone, *Amazing Stories* published twenty-six novels, novelettes, and short stories by Wells.[41]

Bel Geddes's interest in science fiction (and its pervasive evolutionary subtext) must have drawn him to Wells. His personal library contained the following books by Wells: *A Year of Prophesying* (1925), *The Way the World is Going: Guesses and Forecasts of the Year Ahead* (1929), *The Science of Life* (1931), and *The Shape of Things to Come* (1933). Clearly, Bel Geddes's collection reflects an interest in a *later* Wells, who since *The War in the Air* became increasingly prophetic, reaching the zenith of sermonizing about the future in *The Shape of*

---

[38] H. G. Wells, "How We Came to New York," in *The War in the Air, Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963), pp. 114-122.

[39] In 1906, two years prior to the publication of *The War in the Air*, Wells visited America. One can speculate on New York's influence on Wells.

[40] The first issue of *Amazing Stories* (April, 1926) reprinted Wells's "The New Accelerator," a prophecy of how drugs in the future would accelerate the speed of life. For the next twenty-seven months, *Amazing Stories* continued to feature Wells in every issue, with his name appearing in large type on each cover. Wells's *When the Sleeper Wakes* was also published in full length in the first issue of *Amazing Stories Quarterly* (1928), Gernsback's another extension of his pulp-magazine family.

Things to Come.[42] As evidenced by Bel Geddes's customary pencil marks in *Things to Come*, it was Wells's God-like depiction of a post-apocalypse ultra-moral race of the "Modern State" that deeply engaged Bel Geddes in his own attempt to project the idea of the perfect race in the Futurama (this theme will be addressed in greater detail in chapter five). Conversely, in 1939 Wells also found in Bel Geddes's Futurama the realization of his Modern State. As part of the commemoration for the 1939 World's Fair, Wells contributed the lead article, "World of Tomorrow," in *The New York Times* World's Fair Section of March 5, 1939, and in it he used the photograph of Bel Geddes's Futurama as a visual demonstration of his own futurism.

To return to the problem of narrating a utopia, or the inhabitants of a "distant" phenomenon, I would first like to frame the problem conceptually. The crux of the problem lies in utopia's location outside of an historical and temporal condition. As all its political and social contradictions are prematurely resolved and, it is thereby, safely intact in a changeless condition, a utopia can exist only within a conceptual void. The denial of change means that a utopia cannot be narrated with the conventional fiction form in which individual characters develop, through an intricate web of interaction and a dialectical relationship

---

[41] Sam Moskowitz, *Explorers of the Infinite, Shapers of Science Fiction* (Cleveland and New York: The World Publishing Company, 1957), p. 140.
[42] Moskowitz, *Explorers of the Infinite*, p. 138-40.

among themselves, into some kind of finality.[43] A utopia, in contrast, is *already* a final thing without a path that leads its actors and protagonists there. In other words, by its very nature a utopia can inhabit only a self-referential epistemological bubble. The question, then, is how can we know what by definition is beyond our capacity to know? If a utopia is an "object" of the unknowable, then how can the author of the utopia describe an unknowable object with persuasiveness?

Sanctioning for a moment the contradictory idea that evolutionary principles play a key role in the utopian imagination, let us ask a blunt question: could an ape speculate on the character of one of its celebrated descendants, say, Einstein? Or could we, given our epistemology of a distinct "present," perceive the nature of Superman, who is so much more evolved than the present-day *Homo sapiens* that he can ascend by sheer will power? With what conceptual tools, then, to speculate on a utopic condition? For after all, the "lost island" or "happy valley" is clearly a mental construct premised on the idea of a separation from the here-and-now.

To resolve what could be called an epistemic seclusion of the utopia from the here-and-now, turn-of-the-century authors of utopian fiction employed a range of ahistorical literary devices such as time travel, *voyage extraordinaire,* long

---

[43] I borrow the concept from Jean Pfaelzer, "The Impact of Political Theory on Narrative

slumber, drugs, hallucination, immortality, and apocalypse, to name a few. These literary devices simply transported who has been variously called the "utopian hero" or "the mysterious traveler" *to* the utopia, revealed as a whole and as a dream fulfilled.[44] For example, in his *Looking Backward 2000-1887* (1888), Edward Bellamy had his 19th-century protagonist Julian West fall sleep so as to wake him up in a radically-transformed Boston of 2000.[45] Retaining his natural age of thirty years, West then describes a collectivist society based on socialism, pacifism, and American technophilia.

To present his own political manifesto as a speculative fiction, Bellamy confronted the problem of having to bring his observer-narrator hero to his ideal society. West's fictitious slumber of more than a century quasi-magically transports him to Bellamy's cherished utopia. By having West fall asleep, Bellamy could also evade a thorny question most utopists confront: What is precisely the set of issues that leads to a social revolution bringing about the utopia? William Morris's *News from Nowhere* (1891) employs a similar literary

---

Structures," in Kenneth M. Roemer, ed., *America as Utopia*, p. 120.

[44] For the concept of the *hero* in utopia, see Arthur O. Lewis, "The Utopian Hero." Lewis's article is predicated, quite rightly, on the assumption that most utopian fiction has a hero, who could be of two types: agent hero who brings about utopia, and observer hero who describes utopia after its creation. Lewis identifies Utopus, the legendary king who founded Utopia (in Thomas More's *Utopia*, 1516) as the prototype of the agent hero, and Hythloday, the intellectual-traveler who visited and later described Utopia, as the prototype of the observer hero. In "The Mysterious Traveler in the Speculative Fiction of Howells and Twain," Frederick Pratter underscores the centrality of the "dreamlike" displacement from the present to some alternative (but not necessarily ideal) location in what he terms "the speculative fiction formula."

[45] Edward Bellamy, *Looking Backward 2000-1887* (New York: Signet Classic, 1960 [1888]).

device.[46] It differs, however, from Bellamy's in terms of its pastoral ideals, its refusal to envisage any machinery, and its more complex detail than West's too-easy Christian socialist resolution of his late 19th-century political anguish. Yet like Bellamy's West, Morris's protagonist -- William Guest -- falls into a slumber and wakes up in the future house built on the site of his own home. In William Dean Howells's *A Traveler from Altruria* (1894), Aristides Homos does not fall asleep, but rather embarks on a mythic temporally-reverse journey from Altruria to the present world as a way to register Howells's own criticism of its failings.[47]

Although, like Bellamy, Wells also used the technique of "sleeping-over-centuries" in (*When the Sleeper Wakes*), Wells's protagonist is Bert Smallways, the unwilling "flying man" who becomes a pervasive Wellsian literary telescope for witnessing the follies of modernity. Wells's literary production is so vast that it would be deceptive to claim Bert Smallways as what Julian West is to Bellamy. But considering his more well-known books, it appears that *The War in the Air*'s Smallways -- a distinct type of flying narrator -- is not simply this particular novel's dynamic protagonist, but a common literary device that Wells uses in various forms in his novels. While such a device is not unique to Wells -- many details of its characterization are borrowed from 19th-century utopian novels, such as those by Jules Verne -- it is Wells who not only gives a post-Jules Verne

---

[46] William Morris, *News from Nowhere* (London and Boston: Routledge & Kegan Paul, 1972).

scientific validity to the question of flight, but turns flight itself into a method of critical inquiry or a theoretical position "to look at mankind from a distance."[48] One is tempted to make connections between Wells's appropriation of the phenomenon of flight as a narrative technique and the fact that his emergence as a literary figure was concurrent with the development of aviation technology.

In any case, as a "flying" narrator, Smallways of course has a number of Wellsian progenitors -- the Time Traveller in *The Time Machine*, Graham in *When the Sleeper Wakes*, Bedford in *The First Men in the Moon* -- the protagonists who in various capacities fly out to uncharted territories from which they gaze down at Wells's sodoms of social degeneration. A closer look at the character of Graham in *When the Sleeper Wakes* sheds light on the point. After two hundred years of Bellamyesque slumber, Graham, the late 19th-century idealist, wakes up in an oppressively technologized world (2100 A.D.) exploited by a fascist regime. But, then, Wells strategically puts Graham in the "aëropile," to hover above the city as the narrator of the future (**Fig. 31**). The world has been transformed into a gigantic city, walled-in, climate-controlled, and powered by gigantic windmill dynamos that lie outside the city domes. The scores of workers who maintain the city in all its splendor are themselves controlled by a sinister group of strongmen. The architectural severity of such a city could only be matched by,

---

[47] William Dean Howell, *A Traveler from Altruria* (1894)

and represented through, an equally powerful panoptic gaze of a messiah, which Graham has become by virtue of the immense interest his once-meager finances have accrued over two hundred years. Wells's overblown depiction of the future world as a hyper-rational, ordered, disciplined, and hygienic city required a type of omnipotent seer who would envision it in its entirety as well as uncover its sinister controlling mechanism. At the outset of his aerial discovery, Graham even recollects his late 19th-century pre-slumber "strong desire to know more of this new human attainment [aviation]. He had followed the crude beginnings of aërial navigation very keenly in his previous life; he was delighted to find the familiar names of...Langley and Chanute, and, above all, of the aërial proto-martyr Lillienthal [sic], still honored by men."[49] In 1896, just a few years before Wells wrote *When the Sleeper Wakes*, his hero the German aerial experimenter Lilienthal had died in a tragic glider crash; now Graham becomes Wells's new Lilienthal as the seer of the future.

Wells devotes an entire chapter, "The Aëropile," to Graham's aerial journey over the London of 2100 A.D. Through Graham's eyes, it was Wells who envisioned London's reduction into "an intricate space of roofing" and into a well-fortified city in which the surrounding boundary wall is a "steep fall of

---

[48] "Preface," *Seven Famous Novels*, p. ix.

[49] H. G. Wells, "The Aëropile," in (*When the Sleeper Wakes*), *Three Prophetic Novels* (New York: Dover Publications, Inc., 1960), p. 112.

three or four hundred feet, a frontage broken only by terraces here and there, a complex decorative façade."[50] By exploring London's controlled urban form, Graham's powerful gaze from the "aëropile" produces a counterforce to the evil hold of Ostrog over this future city. By virtue of his voyeuristic penetration of the city, Graham produces among the tormented working class of the city hope for liberation from the tyranny of both architecture and its sinister producer.

Wells's mode of aerial depiction in *When the Sleeper Wakes* remained mostly speculative, since the question of powered human flight was still a mystery; the Wright brothers' first successful flight demonstration was to take place five years later. But by the time Wells authored *The War in the Air* in 1908, not only had the lids over the secrets of flight been lifted, but such a milestone of aviation history as the Frenchman Louis Blériot's crossing of the English Channel (1909) in a monoplane was on the horizon. In the meantime, aeronautics has become an important and regular component of Wells's all-too-frequent speculations on the impending apocalypse, accelerated by deadly manipulation of science and technology. In *The War in the Air,* Wells extensively uses the technique of "flying man" as the narrator of what he thought were the absurdities of modern nation-states' race for political superiority.[51] By

---

[50] *Ibid.*, p. 116.

[51] As Frank McConnell has suggested that with this novel -- centering on a German aerial invasion of New York -- Wells's introduced the concept of global political conflict. He vastly exaggerated England's perceived anxiety of a German zeppelin invasion by absurdly extending

intertwining the fate of Bert Smallways with that of the invading German airship wreaking havoc on New York, Wells transformed the unassuming bicycle-shop worker into a powerful aerial observer not just of the destructiveness of aerial warfare, but also of the globalized spectacle of modernity's self-defeating fury. An aerialized Smallways becomes Wells's literary vantage point from which to comment upon what he thought were the disastrous consequences of unrestrained technological progress.

Smallways's ascension as the *seer* of the fate of the modern world was accidental, yet Wells plots it consciously through an improbable but amusing series of events. Accidentally swept across the Channel in a balloon from his East London suburb, Smallways finds himself above a secret German air base where deadly airships are being developed for an attack against the New World. Captured by the Germans who mistake him for Alfred Butteridge -- the pioneer of the English aviation industry -- Smallways is forced to accompany the villainous genius of the new German air power, Prince Karl Albert, on a transatlantic flight and aerial bombardment of New York (**Fig. 32**). With this basic storyline, Wells sets up a consistent aerial perspective and looks at the world with the eyes of a voyeur, intent on revealing the "secrets" of the modern world. A kind of scopophilia (instinctual gratification from looking) marks

---

the fight of the German fleet across the Atlantic to obliterate New York, the center of the New

Smallways's aerial journey. Smallways appears to be a spy, surreptitiously looking at the forbidden. As Wells notes, "He was quite involuntarily playing that weird mysterious part...the part of an International Spy. He was seeing secret things." Smallways's "seeing secret things" is clearly meant to be Wells's own superhuman awakening into the priesthood of prophecy.

For Wells, an aerial observation point belongs not to a human being, but to a sermonizing prophet who is Wells himself, distanced from all that is mediocre, mundane, and human. Such a prophet inhabits, as does Zarathustra, a condition of solitude, for that condition is the very basis of his being able to see what an ordinary person cannot see. As Wells notes:

> To be alone in a balloon at a height of fourteen or fifteen thousand feet--and to that height Bert Smallways presently rose--is like nothing else in human experience. It is one of the supreme things possible to man...It is to pass extraordinarily out of human things. It is to be still and alone to an unprecedented degree. It is solitude without the suggestion of intervention; it is calm without a single irrelevant murmur. It is to see sky.[52]

With superhuman solitude in the sky, Wells's aerial observer inhabits a conceptual liminality, simultaneously appreciating the vigors of modernity and prophesying its eventual atrophy. Thus, upon its arrival above New York, the invading German airship's aerial view first provides an occasion to appreciate the virtues of modern urban planning:

World. See McConnel, *The Science Fiction of H. G. Wells*.

[52] H. G. Wells, *The War in the Air* in *Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963), p. 47.

> [F]rom above, many of the occupants of the airships stared with an equal curiosity. No city in the world was ever so finely placed as New York, so magnificently cut up by sea and bluff and river, so admirably disposed to display the tall effects of buildings, the complex immensities of bridges and mono-railways and feats of engineering. London, Paris, Berlin, were shapeless, low agglomerations beside it. Its port reached to its heart like Venice, and, like Venice, it was obvious, dramatic, and proud. Seen from above it was alive with crawling trains and cars, and at a thousand points it was already breaking into quivering light...It was so great, and in its collective effect so pacifically magnificent, that to make war upon it seemed incongruous beyond measure...[53]

Smallways's appreciative aerial gaze at New York evokes the colonialist imagination of the early immigrants to America and their hope to make the best out of their conquest. Left behind are the vestiges of the Old World -- London, Paris, and Berlin. Only America matters now. Yet, although "it seemed incongruous beyond measure," that hopeful gaze also becomes an integral element of modern aerial warfare. Repeated aerial bombing destroys New York. The very center of the present civilization meets its tragic fate" like the apocalyptic cities of the ancient prophets."[54]

This is hardly surprising, for the eschatological depiction of the modern world has been a common motif in Wells's novels. What seems interesting is that Wells does not stop at being just a prophet of doom. He is bent on being a Zarathustra-like prophet, afloat in "solitude without the suggestion of intervention [and] calm without a single irrelevant murmur" from where he can envision a post-apocalypse civilization. Thus, the aerial view of a flattened New

---

[53] H. G. Wells, *The War in the Air* in *Three Science Fiction Novels*, p. 121.

York is already fused with the hope that from its ruins would rise the phoenix of a disciplined global system maintained (curiously) by aircraft, the argument of Wells's postwar book *The Shape of Things to Come*. A so-called Air Dictatorship, composed of highly-evolved flying supermen, governs Wells's utopia of what he terms the Modern State. The transformation of Bert Smallways's scopophilia into the Air Dictatorship's system of governance in fact reveals Wells's consistent use of an aerial point of view as a literary technique of prophesying.

3.3 The Politics of *la loi du Méandre*: Le Corbusier in South America

> By means of the airplane, we now have proof, recorded on the photographic plate, of the rightness of our desire to alter methods of architecture and town-planning.
> From the plane: there is no pleasure...but a long, concentrated, mournful meditation.
>
> Le Corbusier, *Aircraft* (1935)[55]

Le Corbusier designed a hypothetical city for Rio de Janeiro in 1929, so he claimed, when he had "gone up in a plane for observation and glided like a bird over all the bays."[56] But he did more than just observe: "In the plane I had my sketchbook, [and] as everything became clear to me I sketched...the ideas of

---

[54] H. G. Wells, *The War in the Air* in *Three Science Fiction Novels*, p. 114.
[55] Le Corbusier, *Aircraft* (New York: Universe Books, 1988; originally published in 1935 by The Studio Publications in Great Britain), pp. 11, 123.
[56] Le Corbusier, *Precisions, On the Present State of Architecture and City Planning*, trans., Edith Schreiber Aujame (Cambridge: The MIT Press, 1991; originally published in French as *Précisions sur un état présent de l'architecture et de l'urbanisme*, Paris: 1930), p. 235.

modern planning."[57] Although largely rejected by his Brazilian audience on functional grounds, Le Corbusier's design was part of his ongoing negotiation with aerial experience (**Fig. 33**). As Le Corbusier defined it, aerial viewing constituted a useful theoretical tool to discover a "hitherto unexplored plain" of geographical knowledge.[58] The polemics informing Le Corbusier's flights over South America and his designs revealed, however, that there was a new empowerment of geographical spaces in the act of looking from above.

1927 was the year of Charles Lindbergh's famous transatlantic flight to Paris. As Le Corbusier wrote, "Lindbergh and his cat, leaving a cinema at midnight in America and coming to rest at Paris, is a spectacle."[59] Le Corbusier's first flight was only a year later when he flew from Paris to Moscow in 1928.[60]

---

[57] Le Corbusier, *Precisions*, p. 236.

[58] *Ibid.*, p. 4.

[59] Le Corbusier, *Aircraft*, p. 10. Le Corbusier's formative years coincided with the pre-war aviation euphoria in France. During the years before 1914, the French identified themselves as the "winged nation" *par excellence*, with activities concentrated in or around Paris. The first aerodrome, as the first-generation airports were called, was constructed at Juvisy on the outskirts of Paris. The Brazilian aviation hero Alberto Santos-Dumont carried out his pioneering aeronautical stunts in Paris. A Frenchman, Louis Blériot, was the first to fly the English Channel. As much as it was humankind's victory over physical barriers, Blériot's flight exerted a deep cultural influence on French artists, architects, and novelists. Marinetti's first *Futurist Manifesto* was published in the direct aftermath of Wilbur Wright's exulted flights in France. For a discussion of the French contribution to aviation, see Wohl, *A Passion for Wings*, p.2. Also, Henry Lavedan, "France, In the Air," trans., Elizabeth Ogden Wood, *Flying* (1916).

[60] Le Corbusier, *Aircraft*, p. 10. Also, Jorge F. Liernur, "Le Corbusier and Argentina," paper presented at Harvard GSD (Fall 1996). Unlike his South American trip, Le Corbusier's visit to Moscow was more of a "business" trip, as he sought to defend his designs of the Centrosoyuz project. His expectations from the Moscow trip were significantly different from those of the South American trip in terms of his philosophical quests and aesthetic development. Besides, Le Corbusier's flight from the Le Bourget airport in Paris via Cologne and Berlin to Moscow was direct and unable to leave any strong impression on him, whereas in South America, the inaugural flights he enjoyed were filled with an enthusiasm for the "discovery" of a continent and, more generally, for a fledgling transportation industry. For Le Corbusier's trip to Moscow,

But it was his flying over South America in 1929 that provided Le Corbusier with the opportunity to truly internalize the aerial experience in his thinking.[61] Upon arrival in Buenos Aires in October to deliver a series of lectures, Le Corbusier met Antoine de Saint-Exupéry (1900-1944), the famous pilot and operations manager of the pioneering French Compagnie Générale Aéropostale that had established a number of aerial routes within the continent.[62] Aéropostale invited

---

see Jean-Louis Cohen, *Le Corbusier and the Mystique of the USSR*, trans., Kenneth Hylton (Princeton: Princeton University Press, 1992).

[61] Le Corbusier traveled from France to Buenos Aires by ship, though. Upon arrival, he came across a group of energetic young Frenchmen, stationed in Buenos Aires as Aéropostale pilots. Apart from Saint-Exupéry, the group included Mermoz, Guillaumet, and Reine, all of whom were developing aerial mail delivery routes within the South American continent. The airplane bears special significance in the context of South American modernization. The vast hinterland of the continent lacked efficient communication systems until the early decades of the 20th century, due to concentrated coastal urbanization necessitated by an extractive colonial economy and by the complex geography of the continent. As the South American countries began modernizing their infrastructure, the development of an efficient transportation network linking the interior topped national priorities. Aviation, both as the most modern mode of communication and as a symbol of national progress, appealed enormously to the ruling classes. This was especially true of the larger countries like Brazil and Argentina. The *Estado Nôvo* under the Brazilian president Getúlio Vargas, who was a former Air Force general, placed a premium on the development of aviation in Brazil during the 1930s. Generally, with its enormous distances, South America became a lucrative market for air transportation and for airmail. The German, French, and North American aviation companies engaged in developing various air routes within the continent. Interestingly, Le Corbusier -- seated on the South American Aviation Company's inaugural flight between Buenos Aires and Asunción in Paraguay -- notes that "[t]his American country [Argentina] is dimensioned for the plane. It seems to me that airplane networks will become its efficient nervous system." See *Precisions*, p.3. Also see, Michael L. Conniff, *Urban Politics in Brazil, the Rise of Populism, 1925-1945* (Pittsburgh: University of Pittsburgh Press, 1981), pp. 23-29.

[62] See Le Corbusier, *Precisions*, pp. 1-21. Le Corbusier traveled to Buenos Aires at the invitation of the *Amigos del Arte* (Friends of the Art) and the Faculty of Exact Sciences. In Brazil, he was invited by the State Legislature of São Paulo. Le Corbusier delivered ten lectures in Buenos Aires from October 3 to October 19, 1929. After that, he traveled to Montevideo, the capital of Uruguay, and then to São Paulo. He gave a lecture in Rio de Janeiro on December 8, 1929. For discussions of Le Corbusier's 1929 South American trip, see "A estadia de Le Corbusier no Rio de Janeiro," in Cecila Rodrigues dos Santos and others, *Le Corbusier e O Brazil* (São Paulo: Tessela, Projeto Editora, 1987), Yannis Tsiomis, "Da Utopia e da Realidade da Paisagem," in *Le Corbusier, Rio de Janeiro 1929-1936* (Rio de Janeiro: 1998); Elizabeth Harris, *Le Corbusier, Riscos Brazileiros* (São Paulo: 1987); Fernando Pérez Oyarzún, ed. *Le Corbusier y Sudamérica: Viajes y Proyectos* (Santiago

Le Corbusier to participate in a number of inaugural passenger flights over the delta of the Paraná, the estuary of the Rio de la Plata, the Pampas, Buenos Aires, Asuncion, Montevideo, São Paulo, and Rio de Janeiro. Saint-Exupéry described the exploration of a new "geography"[63] in his important literary works of the time, *Vol de Nuit* [Night Flight, 1931] and *Terre des Hommes* [Wind, Sand and Stars, 1939].[64] André Gide, writing the preface to *Vol de Nuit*, succinctly noted that "[t]he hero of 'Night Flight,' though human through and through, rises to superhuman heights of valor."[65] Le Corbusier described his own reactions to flight in *Précisions* [Precisions, 1930] and *Aircraft* (1935): "The airplane, in the sky, carries our hearts above mediocre things. The airplane has given us the bird's-eye view. When the eye sees clearly, the mind makes a clear decision."[66]

---

de Chile: 1991); Christine C. Collins, "Urban Interchange in the Southern Cone: Le Corbusier (1929) and Werner Hegemann (1931) in Argentina," in *Journal of the Society of Architectural Historians* (June 1995). For Saint-Exupéry's trip to Buenos Aires, see Stacy Schiff, *Saint-Exupéry* (New York: Knopf, 1994), pp. 167-70.

[63] For a discussion of Saint-Exupéry's geographic exploration, see Edmunds Bunkse, "Saint-Exupéry's Geographic Lesson: Art and Science in the Creation and Cultivation of Landscape Values," in *Annals of the Association of American Geographers*, 80 (1) (1990): 96-108.

[64] In *Wind, Sand and Stars*, Saint-Exupéry eloquently wrote about geography and vision: "The airplane has unveiled for us the true face of the earth...from the height of our rectilinear trajectories, do we discover the essential foundation, the fundament of rock and sand and salt in which here and there and from time to time life like a little moss in the crevices of ruins has risked its precarious existence. We to whom humble journeyings were once permitted have now been transformed into physicists, biologists, students of the civilizations that beautify the depths of valleys and now and again, by some miracle, bloom like gardens where the climate allows. We are able to judge man in cosmic terms, scrutinize him through our portholes as through instruments of the laboratory." Antoine de Saint-Exupéry, "The Plane and the Planet" (*Wind, Sand and Stars*) in *Airman's Odyssey* (New York: Reynal & Hitchcock, 1942), pp. 97-99. *Airman's Odyssey* is a trilogy that also includes *Night Flight*.

[65] *Airman's Odyssey*, p. 209.

[66] Le Corbusier, *Aircraft*, p. 13.

While in South America, Le Corbusier developed a number of urban design ideas not only for Rio de Janeiro, but also for Montevideo, São Paulo, and Buenos Aires. What is most interesting in the sketches that he developed is the way in which the aerial view began to depart from the geometric spatial distribution of his earlier planning work.[67] The Cartesian spatiality was now replaced by the linear distribution of the viaduct that would appear again in his 1931 project, the "Plan Obus" for French Algiers (**Fig.**).[68] In Algeria, Le Corbusier also took part in a number of aerial expeditions, his aviator friend Durafour flying him to the country's interior towns of the M'Zab. From the airplane, so he wrote,

> I was able to discover the principle of the towns of the M'Zab. The airplane had revealed everything to us, and what it had revealed provided a great lesson...For one day soon the implication of the bird's-eye view, that nobility, grandeur and style should be brought into the plan of our cities, will be a fact...A new scale of

---

[67] This departure is particularly significant in light of Le Corbusier's sarcastic remarks about Camillo Sitte's romantic advocacy of nonaxial streets in modern town planning. In the early 1920s, when developing ideas for the *Ville Contemporaine*, Le Corbusier waged a fierce attack on the Sitte-inspired visions of the neo-Baroque city. Satirizing the winding streets as the "donkey's path," Le Corbusier likened the straight street to the symptomatic moral character of the modern city-dweller. He maintained: "Man walks in a straight line because he has a goal and knows where he is going; he has made up his mind to reach some particular place and he goes straight to it." In the *Ville Contemporaine*, the city axis is no longer a mere formal choice over the winding streets of the medieval city; instead, it testifies to the aesthetic reflex of man's rational thought process. Le Corbusier, "The Pack-Donkey's Way and Man's Way," in *The City of To-morrow and Its Planning*, trans., Frederick Etchells (New York: Dover Publications, Inc., 1987; originally published as *Urbanisme*, 1925), pp. 5-12. Also see H. Allen Brooks, "Jeanneret and Sitte: Le Corbusier's Earliest Ideas on Urban Design," in Helen Searing, ed., *In Search of Modern Architecture: A Tribute to Henry-Russell Hitchcock* (Cambridge, MA: The MIT Press, 1982).

[68] Not long after his return from South America, Le Corbusier visited Algiers in 1931 during the centennial celebration of the French occupation of Algeria from the Ottomans. Algiers, set against a spectacular landscape of water and mountains, left a lasting impression on him, as did Rio de Janeiro.

> grandeur will animate the architecture of the city and the scope of its undertakings.[69]

Whether or not this expression was trademark Corbusian polemics on modernist optimism hoping to convince the French colonial administration (intent on rebuilding Algiers) to buy into his urban scheme, such polemics formed part of the watershed in Le Corbusier's urban aesthetics.

This is not to claim that Le Corbusier's aerial experience alone engendered such a radical turning point in his urbanism. Mary McLeod has related the organic qualities of the Plan Obus to the Syndicalist utopia -- a symbiosis of man, architecture, and the landscape.[70] Zeynep Celik has interpreted the Algiers project as an aestheticization of the "political geography" of colonial Algeria.[71] For Manfredo Tafuri, the Plan Obus was the "maximum articulation" of capitalistic ideology that renders "the public an active and participant consumer of the architectural product."[72] While these interpretations of the Plan Obus enrich the historiography of Modern architecture and urbanism, they do not take into account the question of technological utopianism (which itself is not

---

[69] Le Corbusier, *Aircraft* p. 12.
[70] Mary Mcleod, "Le Corbusier and Algiers," *Oppositions*, 19/20 (1980).
[71] Zeynep Celik, "Le Corbusier, Orientalism, Colonialism," *Assemblage* 17 (1992). For an elaboration on this theme, see Michele Lamprakos, "Le Corbusier and Algiers: The Plan Obus as Colonial Urbanism," in Nezar AlSayyad, ed., *Forms of Dominance* (Brookfield, U.S.A: Avebury, c1992).
[72] Manfredo Tafuri, *Architecture and Utopia, Design and Capitalist Development*, trans., B. L. La Penta, (Cambridge: The MIT Press, 1976), pp. 125- 138.

apolitical) that influenced Le Corbusier's planning ideology. A new geographical consciousness was herewith being formulated, one that compelled him to confront the relationship between home and the foreign.

Upon his arrival in Rio, he saw the city through the filter of Paris. Comparing Rio's Avenida Rio Branco with the Champs Élysées, he dubbed the city the creation of the "other Haussmann," the prefect of Rio Francisco Pereira Passos.[73] More generally, as far as Le Corbusier's ambitious engagements with South America and Algeria were concerned, these territories, filtered through an amalgam of colonialist and modernist mindsets, displayed *varying* political, social, and cultural "otherness."[74] Although there were striking formal similarities between Le Corbusier's projects in South America and Algiers, and the experience of flight preceded them both as an agent of influence, we cannot assume that these projects envisaged the same social objectives. Le Corbusier's ideologically consistent aerial vision played itself out across a multitude of urban (re)form problems.

Among the South American urban designs Le Corbusier proposed during his 1929 trip, the design for Rio de Janeiro was the most telling. His infatuation

---

[73] Le Corbusier, *The Four Routes* (London: Dennis Dobson, 1947), p. 36. The book was first published in France as *Sur les quatro routes* (Paris: Gallimard, 1941).

[74] In the "American Prologue" in *Precisions*, Le Corbusier registered his first reactions upon arrival in Buenos Aires and Rio de Janeiro through the double vision typical of European explorers and "first settlers": "I saw the odyssey of the settlers...And finally, the flat shore of the

with Rio's spectacular natural setting around water, land, and mountains resulted in an immediate and sustained relationship with the city. His flight over Rio not only allowed him to probe its "violent and sublime landscape," as he called it, but also, ironically, instilled in him a megalomaniacal desire to compete with that very landscape. In his lecture in Rio de Janeiro on December 8, 1929, Le Corbusier records this impression:

> [W]hen, by plane, everything has become clear, and you have learned this topography, this body so hilly and so complicated; when, having conquered difficulties, you have been seized with enthusiasm, you have felt ideas being born, you have entered into the body and the heart of the city, you have understood part of its destiny...everything leads to the joy of creation...
>
> [In] Rio de Janeiro, a city radiant in its universally proclaimed beauty that seems to defy all human participation, a violent desire comes to you, crazy perhaps, to try a human enterprise here too, the desire to play a match for two, a match of the "affirmation of mankind" against or with the "presence of nature."[75]

The outcome of that desire was a hypothetical 100-meter-high viaduct connecting all of Rio's important geographic elements as well as the city's urban nodes. Standing -- or, one might say, slithering -- on rows of 30-meter-high pilotis and, hence, virtually hovering over the city like a giant serpent, the viaduct featured an expressway on top of ten floors of double-height *immeuble-villas* (housing units) at an elevation roughly from 30 to 100 meters. Comparing the housing units to "the nest of a gliding bird," Le Corbusier intended his inhabited viaduct

---

Rio and Buenos Aires on a hitherto unexplored plain. The completely hostile Indians are everywhere..." *Precisions*, p. 4.

as a reconstruction of his own gliding body over the "ground conquered from the air."[76] Despite its size, the viaduct was to remain an architectural line in the geography, one that could "harmonize with the vehement caprice of the mountains."[77] Rio's famous peaks, beaches, and urban regions were all submitted to the new spatial reference, in which all the details of the densely built metropolis were eliminated.[78]

It was apparent that upon *seeing* Rio's landscape from above, Le Corbusier simultaneously carried out a work of discovery, imagination, and, most importantly, reform of its geographical and architectural premises.[79] Flying over the Paraná and Paraguay Rivers, and observing their course, Le Corbusier developed what he called *la loi du Méandre* (the law of the Meander). According to this theory, a river's path was similar to his own philosophical wanderings in search for creative solutions:

---

[75] *Precisions*, p. 236.
[76] *Ibid.*, p. 244.
[77] *Ibid.*, p. 245.
[78] Rio had been the capital of independent Brazil since 1822. For Rio's urban development, see Michael L. Conniff, "Cidade Maravilhosa," in *Urban Politics in Brazil, the Rise of Populism, 1925-1945*, (Pittsburgh: The University of Pittsburgh Press, 1981), pp. 20-29; Alfred Agache, *Cidade do Rio de Janeiro: Remodelaçao, extensão, e embellezamento* (Paris: 1930); and Norma Evenson, *Two Brazilian Capitals*, pp. 4-70. By the time of Le Corbusier's arrival, Rio was already a metropolis comparable to major metropolises of North America and Europe. By 1928, Rio had achieved a population (almost two million) ten times that of a century earlier, a rate comparable only to New York, Chicago, and Berlin. In terms of urbanized land, Rio occupied an area of about 98.4 sq. miles, approximately the size of Washington D.C. (93 sq. miles), Rome (94.2 sq. miles) or Buenos Aires (111 sq. miles).
[79] For a discussion of this phenomenon, see "A estadia de Le Corbusier no Rio de Janeiro," in Cecila Rodrigues dos Santos and others, *Le Corbusier e O Brazil* , pp. 56-67. Also see, Elizabeth Harris, *Le Corbusier Riscos Brasileiros.*

> For my personal use, I have baptized this phenomenon *the law of the meander*, and in the course of my lectures, at Sao Paulo and at Rio, I used this miraculous symbol to introduce my propositions for reforms in city planning or architecture...[80]

Le Corbusier's aerial discovery of a terrestrial morphology thus prompted an act of self-conscious introspection. The vast geography under his commanding gaze reflected his own aggrandized self, aiming to reform the city on an equally expansive ethical ground. On these flights, Le Corbusier was known to have carried with him works by Friedrich Nietzsche and André Gide, authors whose subversive polemics found bold analogies in his radical rejection of the "existing world" which he could *see* as well as reform with "near-divine" omnipotence.[81] He noted that "the flight of a plane provide[d] a spectacle with a lesson--a philosophy." It was no longer, so he added, just a "delight of the senses."[82]

Secure in his heights and freed from all visual claustrophobia and shortsightedness of earthbound vision, Le Corbusier assumed the role of a *dieu voyeur*—to cite Michel de Certeau—whose all-seeing gaze transformed the

---

[80] *Precisions*, p. 5.

[81] Bruno Pedretti, "The Flight of Ethics," *Casabella* 531-532 (1987): 74. More generally, Nietzsche's influence on aviation-minded avant-garde poets, novelists, artists, architects, and urbanists, such as Marinetti, Apollinaire, Proust, Peter Behrens, Malevich, and of course Le Corbusier, has been well documented by Felix Philip Ingold, *Literatur und Aviatik, Europäische Flugdichtung 1909-1927, Mit einen Exkurs über die Flugidee in der modernen Malerei und Architektur* (Birkhauser Verlag Basel: 1978). Also see Fritz Neumeyer, "Nietzsche and Modern Architecture" and Jean-Louis Cohen, "Le Corbusier's Nietzschean Metaphors," in Alexandre Kostka and Irving Wohlfarth, eds., *Nietzsche and "An Architecture of Our Minds"*, (Los Angeles: The Getty Research Institute for the History of Art and the Humanities, 1999).

[82] Le Corbusier, *Aircraft*, p. 123.

geographic *méandre*, or labyrinth, below into a holistic legible "text."[83] Le Corbusier's moralized aerial vision transformed the city, as de Certeau puts it, into "*un espace propre*": a purified, hygienic space, devoid of "all the physical, mental and political pollutions that would compromise it."[84] If the city is an ailing body, as these planners saw it, then its lungs and arteries could now all the more easily be surgically opened up to allow controlled flow of air, light, traffic, and people. In fact, the French title of Le Corbusier's book *Aircraft* is "L'avion accuse..." In other words, the airplane indicts the city. It "scrutinizes, acts quickly, sees quickly...it gets to the heart of the cruel reality -- with its eagle eye it penetrates the misery of towns...Cities, with their misery, must be torn down. They must be largely destroyed and fresh cities built."[85]

While flying over Rio, Le Corbusier proposed a new type of urban imagination different from what one saw from the ground: "From the houses, no one sees [Rio]. There is no more land to build upon...There are nearly a dozen bays, closed, isolated. If you walk through the maze of streets, you rapidly lose all sense of the whole. Take a plane and you will see, and you will understand, and you will decide."[86] It was this type of geographic "sense of the whole" that

---

[83] Michel de Certeau, "Walking in the City," in *The Practice of Everyday Life*, trans., Steven Rendall (Berkeley: University of California Press, 1984), p. 92-93.
[84] *Ibid.*, pp. 94-95.
[85] Le Corbusier, *Aircraft*, p. 12.
[86] Le Corbusier, *The Radiant City* (New York: The Orion Press, 1964; first published in 1933 in France under the title of *La Ville Radieuse*), p. 223.

Le Corbusier's viaduct aimed to achieve. His aerial gaze effectively and economically surveyed the *whole* territory and proposed an aesthetic (re)vision of the city through a renewed geographic scale. Le Corbusier's Rio no longer remained a territorially defined coastal city. With its linear continental itinerary and dimension, the Corbusian viaduct proposed itself as a literal trace of a 20th-century neocolonizer's aerial odyssey towards the "uncolonized" interior. Not only did Le Corbusier's project seek to explore the interior, but it also aspired to bring his own civilizing package of *un espace propre* to all corners of the country.

The political agenda of Le Corbusier's project needs further explanation, however. When Le Corbusier arrived in Rio, Brazil's First Republic (1889-1930) was nearing its end. It was a period marked by the Brazilian elite's full embrace of the cultural ethos of Europe.[87] French culture gripped Rio's schools, theaters, salons, and cafés.[88] As Jeffrey Needell succinctly phrased it, "Civilization was

---

[87] Although an independent country since 1822, throughout the 19th century and even in the early decades of the 20th century, Brazil had remained in many ways a cultural colony. As Norma Evenson notes, Brazil's transition to political independence from colonial rule occured without extended and bloody political crisis, which otherwise might have forced a self-conscious introspection into national identity and collective social goals. The lack of any ideological quarrel between Brazil's ruling elite and the Old World made cultural and economic dependence on Europe almost an inevitable political choice. As the capital of Brazil and the site of political transformation, Rio was the beneficiary of long cultural dependence on Europe. See Norma Evenson, *Two Brazilian Capitals*, pp. 73-75.

[88] Virginia Bernhard, ed. *Elites, Masses, and Moderniztion in Latin America, 1850-1930* (Austin, Texas and London: University of Texas Press, 1979), pp. 11-17; Teresa A. Meade, *"Civilizing" Rio, Reform and Resistance in a Brazilian City, 1889-1930* (Pennsylvania: The Pennsylvania State Univeristy Press, 1997), pp. 17-33.

France and England."[89] The *sertão* (hinterland) was perceived as uncivilized and backward. The resultant chasm between the city and the *sertão* was poignantly captured in the Brazilian writer-philosopher Euclides da Cunha's masterpiece of 1902, *Os sertões* [Rebellion in the Backlands].[90] Da Cunha depicted his journey from the city into the interior of Brazil as an ideological regression from progress to darkness. By supporting the city-as-civilization over the *sertão*-as-barbarity, da Cunha argued that the only way to eliminate the interior's backwardness was to recolonize the interior with the canons of the Eurocentric values of progress that prevailed only in the city.[91]

But in the 1920s, a fiery band of young intellectuals turned their faces toward Brazil's various pre-colonial traditions, searching for what the Brazilian poet Menotti del Picchia called the "Brazilianization of Brazil."[92] They de-emphasized the dependence on Europe and explored instead Brazil's indigenous cultures. The poet Ronald de Carvalho announced: "Let us forget the marble of the Acropolis and the towers of the Gothic cathedrals...We are the sons of the

---

[89] Jeffrey D. Needell, *A Tropical Belle Epoque: Elite Culture and Society in Turn-of-the-Century Rio de Janeiro* (Cambridge: Cambridge University Press, 1987), p. 28.

[90] Euclides da Cunha, *Rebellion in the Backlands*, intro., Samuel Putnam (Chicago: The University of Chicago Press, 1944). Another influencial book on this theme is the Argentinian writer Domingo Faustino Sarmiento's *Civilization y barbarie: Vida de Juan Facundo Quiroga* (1845). See the translation of the book: *Life in the Argentine Republic in the Days of the Tyrants; or, Civilization and Barbarism* (New York: Hafner, n. d.).

[91] Critics have recently argued that Brazil's shifting of its capital from the coastal city of Rio to the interior plateau of Brasilia in 1960 expresses similar ideological concerns.

[92] Quoted in E. Bradford Burns, *A History of Brazil* (New York: Columbia University Press, 1980), p. 237.

hills and the forests. Stop thinking of Europe. Think of America."[93] The *Movimento Antropofágico* -- led by the painter Tarsila do Amaral and the poet-philosopher Oswald de Andrade -- transformed the fears and prejudices inherent in European stories about cannibalism into an artistic celebration of Brazil's own tropical interior and popular cultures.[94] A number of soul-searching Brazilian avant-garde movements in the 1920s rallied for the ideological assimilation of the *sertão* into Brazil's nationalistic consciousness.

While in São Paulo, prior to coming to Rio, Le Corbusier came in contact with some of the proponents of the *Movimento Antropofágico* and, being intrigued, he wove certain aspects of their views together with his own neocolonial desire for "the conquest of America by implacable reasoning."[95] The ideas of internalizing the "difference" of the colonizer embedded in the cannibalism metaphor informed his own urban strategy, with which he validated the preexisting nationalist sentiment to link the city (as the simulacrum of Europe) with the *sertão*. In Le Corbusier's scheme, the viaduct bifurcated near Corcovado:

---

[93] Quoted in Burns, *A History of Brazil*, p. 237.

[94] Eduardo Subirtas, "From Surrealism to Cannibalism," *De La Antropofagia Brasil 1920-1950* (Production: IVAM Institut Valencià D'Art, Valencia 2000), pp. 526-527.

[95] *Precisions*, pp. 16-18. In the "American Prologue," Le Corbusier notes: "The youth of Sao Paulo have explained their thesis to me: we are 'cannibals.' Cannibalism is not gluttony; it is an esoteric rite, a communion with the best forces. The meal was very light; we were a hundred or five hundred eating the flesh of one captured warrior. This warrior was brave, we assimilated his qualities; and more so, this warrior had in turn eaten of the flesh of one's tribe. Thus, in eating him one assimilated the very flesh of one's ancestors." By projecting himself as a "captured warrior" and outlining a system in which the "cannibal" and the warrior feed on each other's

one end moved past the *Centro*, suggesting an eventual crossing of the Guanabara Bay to reach Niteroi, the satellite town overlooking Rio, and the other end continued on toward the hinterland. Mirroring his flight towards the continent's interior, Le Corbusier's viaduct embarked on a journey towards the *sertão* in a bid not only to delimit the coastal city, but also to resituate the continent within the global system of the "World City," an idea Le Corbusier spelled out in his lecture of October 17, 1929 in Buenos Aires.[96] His hypothetical section across the continent of South America presaged the idea of "total urbanization," or what has acquired wide currency in recent times as "globalization," or the "global city." Utopian in its intent, Le Corbusier's World City -- epitomized by 1930s New York or Buenos Aires -- sought to realign city planning in the image of a global society crisscrossed with a network of capitalistic institutions (**Fig. 35**). If the World City meant the contraction of the world into a global system of communication and interdependence, then "airline networks will become its efficient nervous system."[97] Traveling "at 180 kilometers an hour, toward Chile over the Andes, toward Rio, Natal, Dakar, and Paris over the pampas, the rain forest, and the ocean" signified a kind of geographic perception *sans* temporal dimension: it was like being in far-flung

---

flesh, Le Corbusier suggests here an exchange of ideas between himself and the avant-garde Paulistas.

[96] *Precisions*, pp. 215-219.

[97] *Ibid.*, p. 3.

places at the same time.[98] For Le Corbusier, the airplane's rapidly shifting view collapsed the space-time barrier between Rio and the *sertão*, or even Paris, thereby demanding a new type of urbanistic response.

Le Corbusier's aerial vision became doubly significant when seen in the context of the Plan Obus for Algiers. This vision implied, on one hand, the "discovery" of a hitherto unseen world from a privileged point in the sky, and, on the other, a kind of politicized aerial reconnaissance to reprogram the existing city through an artificial terrain of infrastructures. These infrastructures acquired a geographic scale and an atmospheric composition, intelligible only from above, not from the earth where the city and its inhabitants actually exist. A French newspaper critic referred to the Plan Obus as the "bombardment of Algiers."[99] And, more recently, Zeynep Celik has criticized it in "aerial" terms by arguing that Le Corbusier's viaduct established constant visual supervision over the native population and inscribed the colonial society's hierarchical social order -- "the dominating above and the dominated below" -- into a permanent urban image.[100] Yet with his aerial exploration of a new geography, Le Corbusier's urban strategy marked a significant departure from the regional pattern and differential urban growth characteristic of colonial cities. The Plan Obus

---

[98] *Ibid.*, p. 3.
[99] Quoted in Mary Mcleod, "Le Corbusier and Algiers," p. 71.
[100] Zeynep Celik, "Le Corbusier, Orientalism, Colonialism."

restructured the polarized conditions of colonial urbanism: the contrast between port cities (as colonial sites for extracting resources) and the interior countryside (as the potential site of native resistance) was abolished through a mediating geographic network of inhabited infrastructure.[101] The absence of any *center* and a "consciousness of permanent visibility" in this scheme embodied -- to use Foucault's terms -- the mechanisms of control latent in modern discursive regimes, in which power functioned "in a diffused, multiple, polyvalent way throughout the whole social body."[102]

The inhabited viaduct thus reinforced colonial Algiers' supervision of the native population, but it also carried out Le Corbusier's own brand of *mission civilisatrice*. As a formal translation of Le Corbusier's megalomaniacal aerial vision, the Plan Obus articulated his conception of globalized capitalist society's basic functioning across political, cultural, and ethnic boundaries. From the airplane, he saw only geography *sans* political boundaries and, consequently, imagined an architectural program that internalized all sorts of divisive lines, and even that of the horizon. The horizon appeared and reappeared with varying polemical suggestions in his urbanism. In the *Ville Contemporaine*, where

---

[101] For an excellent discussion of this phenomenon of colonial urbanism see Janet Abu-Lughod, "Developments in North African Urbanism: The Process of Decolonization," in *Urbanization and Counter-Urbanization*, Brian J. L. Berry, ed., *Urban Affairs Annual Reviews* 11 (1976).

[102] Michel Foucault, *Discipline and Punish, the Birth of the Prison*, trans., Alan Sheridan (New York: Vintage Books, 1977; originally published in France as *Surveiller et Punir: Naissance de la prison*, 1975), pp. 208-209.

the eye level and the roofscape converged, the city expanded *up to* the horizon. In the South American sketch, however, the viaduct punctuated and "conquered" the horizon. In the Obus drawing, the horizon became accessible: the viaduct entered it and perhaps went beyond (**Fig. 36**). In other words, the idea of "beyond" disappeared as the horizon was internalized by Le Corbusier's expanded visual field. Such graphic techniques revealed as much about Le Corbusier's aestheticization of geography in terms of a cannibalizing architectural metaphor -- the viaduct -- as they did about his self-aggrandizement as an omnipotent aerial planner.

Le Corbusier's designs in Brazil as well as in Algiers showed how the symbolism and experience of flight -- a quintessentially modern phenomenon -- were translated spatially, visually, and politically into the city of the future. Rather than simply proposing the trajectory of future urban planning, the Corbusian projects combined the very nature of seeing, and eventually of spatial organization, with a complex amalgam of geographical, technological, and moral questions stemming from aerial themes. Le Corbusier's projects revealed the emergence of the aviator as a moralist planner, imbued with a feeling best described as the "monarch-of-all-I-survey." For Le Corbusier, the experience of flying was an opportunity to view city planning as a universal act of rectifying both spatial and social pathologies on a terrestrial scale. The polemical

representation of the horizon in his aerial sketches demonstrated that the "beyond" had been accessed and internalized within his optical field -- a graphic technique visually suggesting the theoretical nature of the expansion of his World City. Conceptually, Le Corbusier's schemes went beyond the colonialist construction of hierarchized urban space with a view to situating the city within a global grid of capitalistic institutions. Le Corbusier's aerial discovery of the law of the meander created a broad framework for the representation *of,* and intervention *in,* the territory. The curving line that he drew from the airplane, ironically, became a 100-meter-high megastructure -- suggesting a tentative assimilation of Brazil's impoverished *sertão* -- a hovering megastructure that negated the backlanders' very concept of rootedness in their own soil.

Chapter Four:

An Ornithological Reinterpretation of Architecture:
Norman Bel Geddes's Air Liner Number Four, the Aerial Restaurant, and the City of Tomorrow

Chapter Four
An Ornithological Reinterpretation of Architecture: Norman Bel Geddes's Air Liner Number Four, the Aerial Restaurant, and the City of Tomorrow.

I.

In terms of content, organizational principle, and tone, Norman Bel Geddes's first book *Horizon* (1932) is remarkably similar to Le Corbusier's *Towards a New Architecture* (1927). Like Le Corbusier, Bel Geddes embarked on a path of extravagant prophecies about an imminent "New Era" (of which he would be a prophet) and argued that an artistic *élan* exists behind all great human endeavors from the Parthenon to the grain elevator. But nowhere was the similarity of their aesthetic missions clearer than in the emphasis on the role of transportation, especially the airplane, in shaping as well as experiencing the environment of the future. For both men, automobiles, ocean liners, and airplanes were not simply the icons of modern society, but also conceptual sites where a multitude of modernist arguments on aesthetics was debated.[1]

---

[1] Art historians, urbanists, architects, artists, and novelists have explored the links between the means of transportation and modern aesthetics. Among them, Sheldon Cheney, *Art and the Machine* (New York: Wittlesey House, 1936); I. F. Clarke, The *Pattern of Expectation* 1644-2001 (New York: Basic Books, Inc., 1979); Bruno Taut, *Modern Architecture* (New York: A & C Boni, 1929); Erich Mendelsohn, "The Problem of a New Arch," *Erich Mendelsohn, Complete Works of the Architect* (New York: Princeton Architectural Press, Inc., 1992; first published in 1930 in Berlin); Raymond Loewy, *Industrial Design* (New York: The Overlook Press, 1979); Jeffrey L. Meikle, *Twentieth Century Limited, Industrial Design in America, 1925-1939* (Philadelphia: Temple University Press, 1979); and Donald J. Bush, *The Streamlined Decade* (New York: George Braziller, 1975).

One such argument was whether an object's aesthetic form was a de facto expression of its function. The chapter in which Le Corbusier describes the three modes of transportation is entitled "Eyes which do not see."[2] His ocular metaphor suggests an inability to see the transhistorical functioning of a "form-follows-function" rationale across aesthetic and industrial products. Identifying the airplane as "indubitably one of the products of the most intense selection in the range of modern industry,"[3] Le Corbusier argued that the avant-garde was in fact searching for its aesthetic self-validation in machines of mobility, most notably the airplane:

> We may ...affirm that the airplane mobilized invention, intelligence and daring: *imagination* and *cold reason*. It is the same spirit that built the Parthenon. The lesson of the airplane is not primarily in the forms it has created...[it] lies in the logic which governed the enunciation of the problem and which led to its successful realization. When the problem is properly stated, in our epoch, it inevitably finds a solution.[4]

For Le Corbusier, the airplane fulfilled two modernist ambitions: first, to promote the idea of a new age based on machine aesthetics, and second, to view a hitherto unseen world from a high point. He was elated by the idea, not just of using the airplane to buttress the functionalist approach to architecture, but also

---

[2] Le Corbusier, *Toward a New Architecture*, trans., Frederick Etchells (New York: Dover Publications, Inc., 1986; original English translation in 1927), p. 85.
[3] *Ibid.*, p. 109.
[4] *Ibid.*, pp. 109-110.

of flying and seeing the world from above. In a chapter in *Towards a New Architecture* entitled "Airplanes," Le Corbusier shows his doubly operative gaze -- looking *at* the airplane, but also looking *from* it (**Fig. 37**). In the first image in the book, he looks at the airplane as a modern aesthetic object; in the second, he gazes down from the airplane's cockpit at an otherwise unseen geography. One image in *Aircraft*, however, shows the synthesis of that *double* gaze: the eye looks simultaneously at Manhattan and at a rapidly moving airplane (**Fig.38**).

Bel Geddes viewed the airplane with a similar double vision in *Horizon*. On one side, it was the concept of the aerial vehicle itself that presented "the same organic problems in terms of design as do architecture, sculpture, and literature";[5] on the other, it was the airplane's ability to widen the " horizon that [would] inspire the next phase in the evolution of the age."[6] In other words, the airplane was nothing less than the expression of the New Era because "the latest generation has been born to the air, as others of us have been born to the railroad, steamship and automobile."[7] Bel Geddes noted: "Keats wrote a few immortal lines about a Grecian urn. Had he known about it and felt like it, he could have written them about an airplane."[8] Like many of his contemporaries,

---

[5] Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932), p. 8.
[6] *Ibid.*, p. 4.
[7] *Ibid.*, p. 292.
[8] *Ibid.*, p. 8. Also see, John Keats, "Ode on a Grecian Urn," *Complete Works of John Keats*.

Bel Geddes viewed the airplane as the fulfillment of the modernist dreams of functionality and aesthetic clarity:

> How out of place the moldings and gadgets that we see on our automobile would appear if we saw them on an airplane! When the airplane was developed, it was an all new problem. Its requirements were such that it never occurred to any one to base its design principles on, for instance, a carriage with wings. One may say that when the design of an object is in keeping with the purpose it serves, it appeals to us as having a distinctive kind of beauty. That is why we are impressed by the stirring beauty of airplanes. The underlying principle of the emotional response that the airplane stirs in us would seem to be the same as that which accounts for the emotional effect of the finest architecture -- the form, proportion, and color best suited to that object's purpose.[9]

Bel Geddes's juxtaposition of the Rose Window of the Rheims Cathedral and an airplane motor attempted to dissolve the barrier between high art and everyday machines and sought to justify the aesthetics of the machine in historical terms (**Fig. 39**). The idea that behind the great machine lay the same creative spirit that produced aesthetic masterpieces across time was a useful corporate tool, but its appeal quickly spread beyond corporate hands. In his *Art and the Machine* (1936), the art historian Sheldon Cheney, Bel Geddes's friend, used the images of airplane motors with the same theoretical intent and endorsed them as "abstract compositions arrived at without [the] benefit of [an] artist."[10] As much as it met flight's functional requirements, the airplane's form itself offered, as Bel Geddes,

---

[9] *Ibid.*, pp. 19-20.

[10] Sheldon Cheney, *Art and the Machine*, p. 16.

Cheney, and others held, the most useful site for a modernist justification of the machine in teleological or even evolutionary terms. Bel Geddes's colleague industrial designer Raymond Loewy, for instance, went so far as to present an "evolution chart of design" (1930) that advanced the idea that aesthetic design evolves parallel to human evolution and, therefore, design must reflect its most advanced stage (**Fig. 40**).[11]

The airplane, for Bel Geddes, was, however, more than an evolved aesthetic "body." It was also a trope for an expanded visual field and a signifier of a new "horizon," to which the title of his book alludes. Such a visual field, Bel Geddes added, enabled avant-garde artists to "[batter] down the limitations of the new materials and ideas of their time."[12] When the horizon limits one's vision, a person "is too likely to be influenced in a transaction by the immediate consequences than to see it in perspective as a part of his life as a whole."[13] Against this claustrophobic experience of "immediate consequences," Bel Geddes aimed to link metaphors of aeriality with the airplane, thereby positioning the latter within the discourse of modernist visuality. In this sense, "climbing" and the corollary expansion of the visual field became part of the visual culture that the airplane ushered in.

---

[11] Raymond Loewy, *Industrial Design*, pp. 74-76.
[12] Norman Bel Geddes, *Horizons*, p. 280.
[13] *Ibid.*, p. 280.

> Standing on the shore of the ocean and looking out to sea, his [the artist] horizon is two and one half miles away. Leaning on the rail of the promenade deck of an ocean liner and looking out to sea, the horizon is eight miles away. If he climbs to the crows' nest, his horizon has increased more than six times what it was when he stood on shore.[14]

A widening horizon, as Bel Geddes suggested, was the primary attribute of the "Man of Tomorrow" that he spelled out in a quasi-autobiographical essay.[15] Climbing the "crows' nest" meant scaling the evolutionary ladder and leveling a commanding gaze at the future. The airplane, with its ascensional function and ability to offer a new vision of the world, then became the sign of the great artist himself.

Bel Geddes's interest in aeronautics not only exploited the double possibilities that I mentioned earlier, but also expanded them into the broader theoretical concerns of his spatial designs as well as the social progress they prophesied. With this understanding, in the following section, I will focus on three of Bel Geddes's important designs: the first for a trans-oceanic airplane called the Air Liner #4 (1929-34), the second for a restaurant called the Aerial Restaurant (1930), designed for the Chicago World's Fair in 1933-34, and, finally,

---

[14] *Ibid.*, p. 281.

[15] Norman Bel Geddes, "The Man of Tomorrow...Today," *Info*, no. 4 (April 7, 1939).

the design for the City of Tomorrow (1936-37), an advertising campaign for Shell Oil Company.

II.

In 1927, the year Bel Geddes abandoned theater design to pursue a career in industrial design, Charles Lindbergh fulfilled the persistent American dream of a transatlantic flight. Bel Geddes's interest in this watershed event was indicated by the presence of Lindbergh's signed autobiography *"We"* in his personal library. Within two years of Lindbergh's accomplishment, Bel Geddes tackled the problem of transatlantic flight on a more ambitious scale. With the technical help of the German aeronautical engineer Otto Koller, he designed what he called the Air Liner #4, a grand undertaking that dealt with a host of issues from basic aerodynamic principles to interior arrangement (**Fig. 41**).[16] The Air Liner's shape, dimension, and capacity were impressive: a V-winged aerial vessel with a total wingspan of 528 feet and sleeping accommodation for a total of 606 persons. With a flying time of forty-two hours between Chicago and London, the Air Liner was able to make three transatlantic crossings per week, providing the luxury ocean liners of the day with an aerialized counterpart.

---

[16] File no. 328, Box 17.1-3, Norman Bel Geddes Collection, Hoblitzelle Theatre Arts Library, The Harry Ransom Humanities Research Center (HRC) at the UT Texas, Austin.

The professional correspondence between Bel Geddes and his aeronautical consultant Koller reveals that Bel Geddes, despite his lack of professional training in aeronautics, was serious about building the Air Liner #4, as well as the corporate sponsorship necessary to build it.[17] Of course, no corporate promise loomed on the horizon in the wake of the stock market crash, yet Bel Geddes steadfastly held to his hypothetical project. His interest in aeronautics was, however, fired by something more than an aspiring industrial designer's wishful thinking about authoring an airplane. Like many of the contemporary avant-gardists he venerated (such as Bruno Taut, Erich Mendelsohn, and Le Corbusier), Bel Geddes viewed aeronautical design as a protracted inquiry into the fundamentals of design.

In an entry on "Modern Design" in the *Encylopaedia Britannica,* Bel Geddes noted:

> The development of the airplane is an illustration of the functional method of design in a modern application. The difficulties encountered in the problems of flight have imposed the absolute necessity of skilled design. The airplane must not only fly but must fly at high speed if it is to compete successfully with railroads, ships, and automobiles. Greater speed means either more power or less air resistance. Of the two, the air resistance factor is the more important, for it is a rule of physics that at high speeds as the rate is doubled the power to overcome the air resistance must be multiplied four times. Accordingly, the form of the airplane has been constantly modified so as to cause the least possible disturbance of the air and to slip easily through it. Because the airplane had no precedent, there were no arbitrary standards of appearance to stand in

[17] File no. 328.1, HRC.

> the way of practical design. Entirely from the functional approach has grown the airplane's grace of line and balance of proportions.[18]

On one level, Bel Geddes's statement was a straightforward defense of the Streamlined, an aesthetic symbol of the 1930s that theorized least-air-resistance curvilinearity as a visual expression of an object's most logical and advanced formal evolution (**Fig. 42**).[19] But on another level, it also underscored the link between the airplane -- or, in fact, the phenomenon of ascension, the phenomenon presumably facilitated by streamlining the ascending body -- and the 20th-century theorizations of functionalist aesthetics.[20] The airplane owed its aesthetics, so Bel Geddes argued, to its break with historical continuity and to the direct expressiveness of its functional calling to take off. If it were not functional, it would not fly; therefore, a flying airplane was the purest expression of its utilitarian needs. By virtue of fulfilling those very needs through an economy of

---

[18] Norman Bel Geddes, "Modern Design: Its Problems and Their Solution," *Encyclopaedia Britannica*, April 1934.

[19] Cultural Historians, such as Donald Bush, Jeffrey Meikle, and Arthur Pulos, have described Bel Geddes as one of the first popularizers of the Streamlined aesthetics from the late 1920s. Jeffrey Meikle, for instance, noted: "The breathtaking streamlined visualizations in his book *Horizons* (1932) cornered the market on Sunday-supplement views of 'the world of tomorrow.' By popularizing streamlining when only a few engineers were considering its functional use, he made possible the design style of the thirties. His career had more immediate professional and cultural impact than those of more practical colleagues." See Meikle, *Twentieth Century Limited*, p. 48. Bel Geddes himself contributed an essay "Streamlining," in *Atlantic Monthly*, CLIV (November 1934).

[20] Bel Geddes, "Streamlining," pp.553-4. He noted that "[a]bout the year 1909 the science of aerodynamics borrowed [the word 'streamline'] to describe smooth flow of air as well as the form of a body which would move through air with a minimum resistance...Strangely, the first sound thinking on the nature of air resistance was stimulated not by the wind-driven ship, which was a commonplace, but by speculation on human flight."

structure and shape, the airplane superseded the realm of the functional, thereby achieving an aesthetic symbolism. It was from this symbolism that the Streamlined expression, Sheldon Cheney suggested, drew its theoretical validation: "As an aesthetic style mark, and a symbol of twentieth century machine-age speed, precision, and efficiency, [the Streamlined] has been borrowed from the airplane and made to compel the eye anew, with the same flash-and-gleam beauty re-embodied in all travel and transportation machines intended for fast going."[21]

The architecture of the Air Liner #4 addressed the issues of compact planning, efficient spatial distribution, and avian formal expression. Inside, it featured a compact nine-storied architectural honeycomb, providing all the amenities of a modern hotel: a three-story-high atrium located at the front and center of the plane, flanked by a promenade with large shatterproof glass windows, which ran the entire length of the main wing (**Fig. 43**). The promenade offered an unobstructed frontal vision of a fleeting geography. Several dining rooms, dance floors, cocktail lounges, a recreation deck with tennis courts, a gymnasium, a solarium, a library, a veranda café, and rows of private suites revealed its spectacular spatial program. Two sixty-foot-high teardrop-shaped pontoons supported the giant plane on the water. The pontoons mainly

---

[21] Sheldon Cheney, *Art and the Machine*, pp. 96-97.

contained service areas: fuel and baggage storage, the entrance vestibule, crew accommodations, kitchens, and emergency support. No fantasy, Bel Geddes's behemoth carried an army of 155 crewmembers and was propelled on twenty engines. The architecture of the Air Liner was clearly inspired by the concept of an autonomous city.

In one way or another, the Air Liner #4 represented Bel Geddes's conception of an energy-efficient, smoothly functioning, self-sufficient city – a utopia that heightened the drama of autonomy by literally taking flight. While transatlantic flight remained its primary goal, the Air Liner offered the notion of an aerialized city that embodied what Paul Virilio dubbed aviation's "counter-gravity allowing man to shed telluric gravity, the stability of gravitational space that has always oriented man's habitual activities."[22] By aerializing architecture, the Air Liner (like many concurrent formulations of "flying," "floating," and "hovering" cities in science fiction magazines and popular culture) instantiated a conceptual shift that tilted the concept of architecture out of its age-old gravitational axis.[23] Bel Geddes's Air Liner produced an illusion that architecture no longer needed an earth to grow from. If the earth was the foundation of

---

[22] Paul Virilio, *Open Sky*, trans., Julie Rose (London and New York: Verso, 1997), p. 2.
[23] For an excellent collection of this type of architecture, see Ulrich Conrads and Hans G. Sperlich, *The Architecture of Fantasy, Utopian Building and Planning in Modern Times*, trans., Christian C. Collins and George R. Collins (New York: Frederick A. Praeger Inc., 1962). Also see, Christian W. Thomsen, *Visionary Architecture, From Babylon to Virtual Reality* (Munich and New York: Prestel, 1994).

architectonic knowledge -- symbolized by the post-and-lintel spatial coordination of Laugier's primitive hut – then Bel Geddes's Air Liner suggested a type of architecture for which that earth was now literally a receding memory.

Escape from architecture's earthly confinement has histories as old as those of architecture itself. One of architecture's mythical originators, Daedalus, was not only building the Cretan labyrinth but also envisioning flying machines to escape the embroilments of earthly life. Architecture itself imagined as a flying machine was part of post-Renaissance utopian thinking: reflected in the fantastic island of Laputa in *Gulliver's Travels* (1726), Jules Verne's 19th-century aerial vessels, and the flying cities of early 20th-century Expressionist architecture and science fiction (**Fig. 44**).[24] The avant-garde viewed past architecture as having been condemned to heaviness, and the notion of lightness that permeated its thinking in the early 20th century offered an alternative logic, a different perspective on spatial modulation.[25] Lightness, of course, did not simply mean

---

[24] The architect Bruno Taut introduced an emblematic synthesis of the aerial vessel and architecture in 1920 in his hypothetical "cosmic-comical aerial entertainment," which was "carried by airplanes and [was] rotated by propellers in the wind [while] planes disguised as comets [zoomed] around the carousel." Observing a daring realization of the Tautian concept of "hovering" architecture in the 1939 New York World's Fair's theme complex, the Perisphere and the Trylon, El Lissitzky commented: "[I]t is but a technical matter to secure statically these elementary volumes which create new dynamics and relationships in space...The liberating of foundations from being tied to the earth goes even further and demands the conquest over gravity itself. It demands floating bodies, a physico-dynamic architecture. Even if present actualities require a curtailment in these plans for the future, their invigorating essence already is apparent today." Quoted in Conrads and Sperlich, *The Architecture of Fantasy*, p. 18.

[25] As recently as 1988, Italo Calvino claimed that the conquest of gravity (and the attainment of lightness) became one of the great utopian dreams of the 20th century. For Calvino, conquering

making architectural structures light or shedding weight; rather, it meant finding new ways of grounding architectural mass and of conceiving the figure-ground relationship.

Bel Geddes's 1929 Aerial Restaurant offered a case in point. Designed for the Chicago World's Fair (1933-34), the Restaurant proposed what could be called an "ornithological" reinterpretation of architectural form (**Fig. 45**).[26] Suspended, cantilevered, and afloat atop a 278-foot vertical shaft, the triple-deck restaurant not only semanticized the ascending body of the aviator, but also revealed architecture's rebaptized relationship with the earth. The Aerial Restaurant's architecture became bird-like, simulating flight and separating itself from the "native ground" -- to use Heidegger's term – or from an originary ground "on which and in which man bases his dwelling."[27] If Heidegger's earth signifies a stable, heavy, and unmovable *arche-ground* that anchors, centers, and orients architecture within the coordinate visual field of our upright posture, then, for the Aerial Restaurant's architectural typology, the weighty "native

---

gravity was -- more or less in line with Nietzsche's calling for the conquest of *schwer* -- a philosophical challenge, requiring one to "look at the world from a different perspective, with a different logic and with fresh methods of cognition and verification." Calvino's observation succinctly captured the sentiments of early 20th-century visionary culture. See Italo Calvino, *Six Memos for the Next Millennium* (New York: Vintage Books, 1988), p. 7.

[26] File no. 169.1, HRC. Also see, Jennifer Davis Roberts, *Norman Bel Geddes, An Exhibition of Theatrical and Industrial Designs* (Ex. Cat., Humanities Research Center, The UT Texas, Austin, 1979), p. 23.

[27] Martin Heidegger, "The Origin of the Work of Art," in *Poetry, Language, Thought*, trans., Albert

ground" lost its foundational significance. In its "visionary" terms, the Aerial Restaurant no longer needed to grow from an *arche-ground* as did, for instance, a Gothic cathedral.

Bel Geddes's Aerial Restaurant shared a broader interest in ornithological perceptions of architecture. In his 1927 quasi-caricature project "Zeppelin Delivery of 4-D Houses," Buckminster Fuller reversed the conventional concept of architectural growth from the ground up by suggesting that zeppelins would soon plant houses, which could be grouped on stacks, in craters excavated by nothing other than another aerial operation: bombing (**Fig. 46**) [28]. The most vivid expression of "flying" architecture was, of course, found in the fantasy world of the science fiction magazines that saturated America in the 1920s. Hugo Gernsback, the most influential publisher of science fiction magazines, and Frank Paul, an architect better known as an illustrator, together created some of the most enduring images of fantastic cities that represented the visionary culture of the interwar era.[29] Conceived by Gernsback, an illustration from the magazine *Science and Invention* of February 1922 shows a city 10,000 years hence (**Fig. 47**). A replica of New York City hovers several miles above the surface of the earth, a virtual paradise in cleaner and purer air, and freed from all earthly diseases.

---

[28] See Conrads and Sperlich, *The Architecture of Fantasy*, p. 19.

[29] See Paul A. Carter, *The Creation of Tomorrow, Fifty Years of Magazine Science Fiction* (New York: Columbia University Press, 1977), pp. 3-5 and Sam Moskowitz, *Explorers of the Infinite, Shapers of Science Fiction* (Cleveland and New York: The World Publishing Company, 1963), pp. 225-242.

Gravity-defying technology, by means of four gigantic generators, keeps the city aloft. The city is self-sufficient, converting solar energy into electric energy. Roofed over by a transparent and unbreakable substance, the city ensures a controlled environment.

The same year Bel Geddes designed the Aerial Restaurant, Paul Frank illustrated the cover of the Gernsback-edited *Air Wonder Stories* (1929) with a "City in the Air" (**Fig. 48**). While scientific fantasy remained its guiding force, Frank's airborne city brought to the fore a wider fascination -- beyond the funnies and the pulp -- with aerialized architecture, a simulacrum of the ascending human body itself. Kathleen Church Plummer has cogently shown that modernist designers nourished their own brand of utopian thinking by drawing upon this genre of imagery during the interwar period.[30] If gravity oriented and centered architecture in certain telluric spatial relationships, then the Bel Geddes's Aerial Restaurant and the "City in the Air" revealed possibilities for repositioning architecture within a new type of visual field. The inclusion of the Aerial Restaurant on the cover of *Popular Mechanics* in its July 1930 issue showed the blurred boundaries between architectural facts and (science) fiction (**Fig. 49**).

---

[30] Kathleen Church Plummer, "The Streamlined Moderne," in *Art in America*, vol. 62, no. 1 (January-February 1974), pp. 46-54.

Bel Geddes's Aerial Restaurant was significant at two conceptual levels. Firstly, the rotating restaurant at an altitude of 278 feet – a "swell idea" as the New York architect Harvey Wiley Corbett put it -- tested the notion of flight architecturally. The shaft, although 28 feet in diameter, seemed remarkably slender in comparison with the architectural form it supported, thereby creating the *illusion* that architecture was taking flight. (Incidentally, in 1929 Bel Geddes also designed another restaurant in the shape of an airplane for the Chicago World's Fair). A foundation to stand upon no longer remained a structural imperative, at least in visual terms if not in reality.[31] Secondly, the Aerial Restaurant offered an "aeroplane view" – dubbed such in the news media – of the fairground, the lake, and the city. As the triple-deck restaurant turned at the rate of a complete revolution every thirty minutes, the patrons were treated to a 360-degree expansive vista, a novelty extolled by the architects Harvey Corbett and Raymond Hood during the World's Fair Architectural Commission's review of the project.[32] Bel Geddes highlighted the rotating aerial vision in *The Chicago Daily News*: "I think this aerial restaurant is practicable, beautiful and worth

[31] El Lissitzky's *Wolkenbügel* (Cloud Hanger, 1924) had already dreamt of an architectural flight.
[32] Minutes of the review meeting are in File 169.1 (January 21, 1930), HRC. Present in the meeting were architects Harvey Wiley Corbett, Raymond Hood, Paul Cret, and Norman Bel Geddes.

while for Chicago to have, if for no other reason than to give its visitors a beautiful view of the city during the course of a meal."[33]

The significance of such a view, however, must be pondered beyond its commercial and entertainment lure. By elevating the restaurant patrons to an altitude of 278 feet, Bel Geddes sought to provide them with an aerial view of the fairground's "plan" that was to embody the spirit of the Chicago Fair: the Century of Progress. In one way or another, such a view was to be an integral component of the Fair's very prophecies of progress. The Aerial Restaurant was intended to be as much a sign of a new type of architecture freed from the ground (which was of course viewed as a sign of progress by the Fair's Architectural Commission) as it was to be a provider of an aerial vision, a vision with which 20th-century modernist planners ideologically empowered themselves to "order" and "renew" the city. Altitude, which allows (as Roland Barthes argues) "an incomparable power of *intellection* [and] permits us to transcend sensation and to see things *in their structure*," became both a strategic tool and conceptual vantage point for the modernist planner.[34] The "aeroplane view" that the Aerial Restaurant promised, then, became an operating framework for instilling the patrons with a "power of intellection" and an

---

[33] Quoted in Tom Mead, "Revolving Café, 278 Feet in the Air, is Plan for Fair: Unique Structure Designed for Century of Progress," *The Chicago Daily News* (n. d.).
[34] Roland Barthes, *The Eiffel Tower and Other Mythologies*, trans., Richard Howard (Berkeley: University of California Press, 1979), p. 9.

illusion that they were privileged *seers* as powerful as the planners of the fairground and the city beyond. Bel Geddes envisioned the Aerial Restaurant's lofty observation deck as a symbol of the modernist planner's God's-eye viewpoint in the way that H. G. Wells had employed the protagonist Graham's "aëropile" journey in his *When the Sleeper Wakes* (1899) as a literary device to describe the London of 2100 A. D.

Bel Geddes's flirtation with the exalted viewpoint of the modernist planner found a systematic testing ground in what he called "the City of Tomorrow."[35] At the behest of Shell Oil Company, in 1936 Bel Geddes began developing ideas for a metropolis of the future (**Fig. 50**). As a master showman well known in the café society of New York, he had already struck up a personal friendship with the president of the J. Walter Thompson Advertising Agency, Stanley Resor, who provided Bel Geddes with various commissions for product design all through the 1930s.[36] It was Resor who cut a deal with Bel Geddes, seeking his assistance in developing an advertising campaign for Shell Oil, a project that was to embody corporate America's dream of a smoothly functioning utopia crisscrossed with highways. The oil company sought to camouflage its desire for a national highway system, filled with cars incessantly

---

[35] File no. 356, HRC. Also see, Jeffrey Meikle, *The City of Tomorrow: Model 1937* (no publication information is available).

[36] Meikle, *The City of Tomorrow*, pp. 5-8.

thirsty for nothing other than Shell oil, with a philanthropic gesture of shaping the city of tomorrow. Bel Geddes, however, characteristically commandeered the Shell advertisement campaign to look far beyond the corporate vision of "the traffic conditions of the future" and to develop his own ideas for an American utopia based on mobility, efficiency, hygiene, and, finally, an aesthetic vision befitting the machine age.

The contract with Shell Oil required Bel Geddes to produce a scale model (to be photographed for the advertisement) portraying the future of the interstate highway system. But Bel Geddes rose to the occasion like a heroic planner intent on reshaping the future itself. He developed his conception of an urban order in an intricate model, triangular in plan, with one of its six-foot sides representing approximately the width of Manhattan. Containing about 280 standard city blocks, not only did his model demonstrate how multilane superhighways would be the lifelines of the City of Tomorrow, it also drew on the urban imaginings of, most notably, H. G. Wells, Harvey Wiley Corbett, Hugh Ferriss, and Le Corbusier. In purely visual respects, Bel Geddes's project embodied the spatial orderliness characteristic of the Wellsian metropolis and portrayed the ability to flow unhindered as an index of society's efficiency. Further, Corbett's 1923 semi-official commission on "The Regional Plan of New York and Its Environs" provided Bel Geddes with a realistic approach towards multi-level

urban circulation through skyscraper cities. As in Ferriss and Le Corbusier, multistoried towers dotted Bel Geddes's cityscape within a Cartesian spatial grid. Conceptually, the project did not offer anything remarkable but rather synthesized an assortment of urban themes that were circulating among the avant-garde urbanists of the period.

What makes Bel Geddes's project intriguing, however, is its filtration through another layer of representation in the photographic medium. There is no doubt that from the beginning Bel Geddes conceived his model city primarily in terms of how it would look through the camera lens; in other words, for its photogenic qualities. Visual impact, as seen from the air, became the project's overriding consideration. An empty warehouse was rented solely so that a camera could maneuver freely above the model and duplicate Bel Geddes's own heroic vantage point from which he gazed down at the City of Tomorrow (**Fig.51**).[37] Peering down from a high platform or acrobatically perched at the top of a stepladder, Richard Garrison, a commercial photographer who knew Bel Geddes's penchant for showmanship and dramatic spectacle, created from the model a series of spectacular and, ultimately, sublime utopian views (**Fig. 52**). Smoke bombs created an atmosphere intended to approximate the haze natural to an urban environment, as well as clouds that would render realistic this ersatz

[37] Meikle, *The City of Tomorrow*, p. 22.

airborne view. From July to November 1937, such well-circulated magazines as *Life* and the *Saturday Evening Post* carried Shell advertisements presenting Bel Geddes's City of Tomorrow along with ebullient captions.[38] In one such instance, a quintessentially Ferrissian gaze focused on an intersection of the city, a gaze that revealed not so much about the traffic pattern of the future as about Bel Geddes's ascension to the status of an all-seeing and -solving planner (**Fig. 53**). Garrison's airborne camera indeed cogently summarized Bel Geddes's elevated ambition to resolve the entire gamut of urban pathologies.

During the course of the model's construction, Bel Geddes employed a set of variously sized rectangular wooden blocks representing skyscrapers, which he manipulated at will from above like a chess player intent on winning *his* game (**Fig. 54**). Four building types selected whimsically for the model – the Woolworth Building, Trinity Church, the National Archives, and Notre Dame Cathedral – demonstrated how Bel Geddes, secure in his height and hubris, sought to move "architecture" around in his imaginary geographies. His detached and distant gaze from above, like those of Le Corbusier and Hugh Ferriss, did in fact seek to dissolve architecture's historically sedimented foundation. Architecture could now be razed, or even raised, for a grander vision. A year later in 1938 in a letter to his wife Bel Geddes recalled his strange

---

[38] *Ibid.*, p. 23.

experience of *arranging* skyscrapers on the more ambitious project of the Futurama: "[Walking] around with pockets and hands full of skyscrapers" and laying them out for a "whole effect" from a bird's-eye view indeed rendered grandiose Bel Geddes's position as a planner.[39] In her reply, his wife wished she had seen him "playing god...plunking down skyscrapers where you want and spending millions as you choose."[40] In fact, behind this phenomenon of "playing God" lurked a heroic aesthetics of ascension that propelled the avant-garde imagination as it sought to resolve all urban pathologies.

---

[39] Quoted in Meikle, *Twentieth Century Limited*, p. 208.
[40] *Ibid.*, p. 208.

Chapter Five:

Constructing a Spectatorial Psychology:
A *Voyage extraordinaire* in Norman Bel Geddes's Futurama.

5.1 Future-Gazing at the 1939 New York World's Fair
5.2 "All Eyes to the Future": The Futurama's *Voyage extraordinaire*
5.3 Considering a Modernist Subject in the Futurama

5.1 Future-Gazing at the 1939 New York World's Fair

Next to the 1939 New York World's Fair's Theme Center—consisting of a huge globe, the Perisphere, and a triangular tapering tower, the Trylon—stood a tall statue of a nude muscular man carved in white stone. Located at the geographic center of the Fair, the 200-foot-wide Perisphere and the 700-foot-high Trylon were impressive, dominating the vistas at the fairground. The two prodigious structures almost overwhelmed the neighboring white nude that nonetheless offered a window on some of the fair's salient aspirations. The statue was called *The Astronomer* and was designed by Carl Milles, a Swede whose civic sculpture in and around Chicago during the 1930s had received great acclaim.[1] Standing confidently on a high pedestal, *The Astronomer* held a temporally frozen atom on his palm and leveled a curious upward gaze at the sky, or rather at the uncharted extraterrestrial universe (**Fig. 55**). His "astronomical" gaze indeed evinced the fair's unflinching commitment not only to Depression-era America's vision of an ebullient future, but also to rendering in visual terms the fair's kernel concept: future-gazing. Seeing the future was as

[1] Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977), pp. 4-5.

much significant an exhibit as the future itself.[2] Historians and cultural critics, such as Warren Susman and Roland Marchand, have suggested that the historical significance of the 1939 New York World's Fair in fact lay in its emphasis on visual techniques and exhibits that enabled fairgoers to literally and figuratively see the future.[3]

One of such techniques of future-gazing was thematized in the central axis of the fair that ran along the Constitution Mall between the Theme Center and the U.S. Government's Federal Building. Between these structures stood James Earle Fraser's monumental statue of George Washington (**Fig. 56**).[4] On the part of the fair's planners, the positioning of Washington's statue on the axis was a self-conscious strategy to produce the illusion that Washington was gazing at the Perisphere, "his back on years of progress, his eyes on the future. The philosophical suggestion is that with 150 years of successful democratic government, founded by Washington and the men of his generation, behind the

---

[2] The fairground itself, for example, became the object of highly idealized spectatorship from above. Harry Petit, well-known as the illustrator of the futuristic, airship-filled "Dream of New York" published by Moses King in 1908, used his aerial view of the fairground in the official guidebook to sing the panegyric to modern planning. See the exhibition catalogue *Drawing the Future: Design Drawings for the 1939 New York World's Fair*, published by The Museum of the City New York (August, 1996), p. 12.

[3] Warren Susman, "People's Fair: Cultural Contradictions of a Consumer Society," in Helen A. Harrison, et al. *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980). Roland Marchand, "The Designers Go the Fair II: Norman Bel Geddes, The General Motor's "Futurama," and the Visit to the Factory Transformed," *Design Issues* 8, (Spring 1992): 23-40.

[4] The 1939 Fair also had a patriotic register: April 30, the opening day, commemorated the 150th anniversary of Washington's inauguration as President at Federal Hall in New York City.

nation of today, America can face the World of Tomorrow, represented by the huge, modernistic and unorthodox structures of the Perisphere, with the same cool assurance that the first president exhibits in his massive sculpture."[5] As one fair enthusiast explained: "Perhaps to George Washington the Perisphere is a huge, crystal ball telling of the 'shape of things to come.'"[6]

The Perisphere was not, however, merely Washington's imaginary crystal ball; it was also like a mythical womb inside which fairgoers found themselves in a God-like position to foresee the birth of the fair's "official" utopia (**Fig. 57**). That utopia took shape in the form of the industrial designer Henry Dreyfuss's keynote exhibit, "Democracity," hailed by the official guidebook as the "symbol of a perfectly integrated metropolis pulsing with life and rhythm and music."[7] Democracity's display technique expressed the omnipotence with which modernist planners sought to "order" the future city into seamless spatial sectors, naively believing that such ordering would produce an ideal society. Fairgoers went up the Trylon on what was then the world's highest escalator and then entered into the Perisphere, stepping onto one of two hanging and rotating balconies at the middle of the globe from which they gazed down on a metropolis of 2039.

---

[5] Quoted in Robert W. Rydell, *World of Fairs: The Century-of-Progress Expositions* (Chicago and London: The University of Chicago Press, 1993), p. 131.
[6] Quoted in Rydell, *World of Fairs*, p. 131.
[7] See the *Official Guidebook*, New York World's Fair 1939. Also quoted in Rydell, *World of Fairs*, p. 131.

Democracity's novelty resonated with the fair's overall utopian program promoting the idea that the future could be transformed into a grand spectacle like a consumable commodity. The balconies played out an aviation theme centered on the airplane "eye" that enabled a synoptic viewing of Dreyfuss's metropolis. They also alluded to the vantage point of the God-like planners who envisioned their creation from above with a sense of self-confidence in their ability to correct current urban pathologies. Through a six-minute performance presented to spectators on balconies that circled slowly above the large model, Dreyfuss transformed the spectators into future aviating citizenry, or into a coming generation of aerial commuters whose visual capabilities would be different from erstwhile exclusively earthbound types. The fair's official guidebook described the exhibit through the eyes of an aviating citizen:

> Here is a city of a million people with a working population of 250,000, whose homes are located beyond the city-proper, in five satellite towns...After you have gazed at the model for two minutes, dusk slowly shadows the scene. The light falls, and the celestial concave gleams with myriad stars. To the accompaniment of a symphonic poem, a chorus of a thousand voices reaches out of the heavens, and there at ten equidistance points in the purple dome loom marching men—farmers stamped by their garb; mechanics, with their tools of trade. As the marchers approach they are seen to represent the various groups in modern society—all the elements which must work together to make possible the better life which would flourish in such a city as lies below. The symphony rises to diapasonal volume, the figures assume mammoth size; the music subsides, the groups vanish behind slowly drifting clouds, and suddenly a blaze of Polaroid light climaxes the show.[8]

[8] See the *Official Guidebook*, New York World's Fair 1939.

The quasi-prophetic and moralizing performance was further dramatized by a chorus of voices singing the New York World's Fair theme song: "We're the rising tide coming from far and wide/Marching side by side on our way,/ For a brave new world,/Tomorrow's world,/That we shall build today." The theme song's reference to Aldous Huxley's recently published best-selling novel *Brave New World* (1932) evoked the well-circulated utopian aspirations of the period in the shape of Democracity. If the Perisphere became the "brave new world," then the spectators positioned atop it were meant to be its heroic creators.

After the show, spectators descended to ground level via a spectacular curved ramp called the Helicline (**Fig. 58**). But it was their "ascension" to the rotating balconies from which they gazed down upon Democracity through the God's-eye vision of its planner that lent moral meanings to the fair's Theme Center. Such a visual technology points us to the 1939 Fair's persistent display methods that engaged spectators in ways no previous world's fair had attempted.[9] Democracity highlighted the links between human flight and the new types of visuality they gave rise to. The interwar period was of course the halcyon era of air travel, aerial photography, and, above all, viewing the world anew, all of which became integral parts of the period's technocentric

[9] Susman, "The People's Fair," and Marchand, "The Designers Go the Fair II: Norman Bel Geddes, The General Motor's "Futurama," and the Visit to the Factory Transformed."

utopianism. As a showcase of the period's utopian culture, the 1939 New York World's Fair featured various exhibits that embodied a potpourri of aerial themes. The two favorite utopian extravaganzas of the 1939 Fair—General Motor's Futurama and the Theme Center's Democracity—employed simulated flights as systems of gazing at the future.[10]

The fair's Transportation Zone abandoned the conventional non-participatory display of transportation machines in favor of recreating the spatial and visual experiences that these machines would spawn. The zone's thematic exhibits not only embodied visions of future transportation, but also sought to offer the fairgoers the spatial and geographical experiences of the new transport in the simulated environment of the future city.[11] Transportation exhibits became exuberant performances against the backdrop of the future city. As it engaged spectators experientially with various exhibit-cum-performances, the Transportation Zone evidently proved to be the most appealing in comparison with the fair's other six zones that classified exhibits according to their relationship to modern society: Production and Distribution, Food, Communications, Medicine and Public Health, Science and Education, and

---

[10] David Gelernter, *1939: The Lost World of the Fair* (New York: Free Press, 1995), p. 26.

[11] The Transportation Zone's Ford Pavilion (designed by Walter Dorwin Teague) proposed a ride in a new car on the "Road of Tomorrow," a demonstration cork-and-rubber track that spiraled up to the top level of the building and circled around it for more than half a mile, thereby introducing visitors to the advantages of elevated roadways and the separation of pedestrian and automobiles.

Community Interests (**Fig. 59**). Consisting of exhibits on road, railroad, marine, and aerial transportation, the Transportation Zone promised fantastic trips to utopia. The Aviation Building, with its outlandish architectural form of an airplane hangar, could not have been a better evocation of a gateway to utopia (**Fig. 60**)![12]

Donald Deskey's Focal Exhibit of the Transportation Zone, housed in the Chrysler Building, featured a mixed-media history of transportation that climaxed in the departure of a commuter rocket for a suborbital trip to London (**Fig. 61**). *The New York Times* reported: "Here with the startling effects of light, speed, sound, and distance, a rocketship is loaded into a gigantic gun and launched into the night, to go winging into the vast reaches of the sky toward London."[13] While stratospheric traveling, space colonization, and intergalactic voyages were the leitmotifs of interwar science fiction, they were presented at the fair not just as tenable technologies in the immediate future, but as events that would soon reformulate the conventional sense of time and space. Deskey's stratospheric transatlantic trip in one way or another suggested a re-conceptualization of the earth as well as the geographic perceptions that enframed it.

---

[12] The architects William Lescaze and J. Gordon Carr designed the Aviation Building.
[13] Larry Zim, Mel Lerner and Herbert Rolfes, *The World of Tomorrow: The 1939 New York World's Fair* (New York: Main Street Press, 1988), p. 107.

The well-known aviator and entrepreneur Howard Hughes's round-the-world flight in a plane in 1938 set an optimistic backdrop for the Transportation Zone against which spectators could inspect a fantastic exhibit like Deskey's, sharing in the process the exhibit's predictions of a new planetary consciousness (**Fig. 62**). While such predictions cannot be disentangled from the fair's corporate sponsors' self-conscious attempt to project a coherent model of society (in which business would thrive), they were in many ways the period's abstract cultural artifacts. In an era when the imagination of the *future* became a useful respite from Depression-era America, extravaganzas such as Democracity or stratospheric journeys or the Futurama appealed immensely to the popular imagination.

5. 2 "All Eyes to the Future": The Futurama's *Voyage extraordinaire.*

If polls, media coverage, and long queues of spectators were any index of success, then undoubtedly the 1939 Fair's *cause célèbre* was Norman Bel Geddes's Futurama. The Futurama was presented as part of the auto giant General Motors' "Highways and Horizons" exhibit in the Transportation Zone. However, the fair's effort to offer a glimpse of a brighter future found its most dramatic realization in the Futurama. General Motors' sponsorship did not bind

Bel Geddes in a contractual agreement requiring him to produce a corporate advertisement that would merely shoot up the company's car sales. Instead, the Futurama enticed fairgoers to *participate* in General Motors' and Bel Geddes's shared vision of a "world of tomorrow." In fact, even before General Motors signed an agreement to finance Bel Geddes's exhibit, it was already a part of his conception of a future metropolis. Bel Geddes's 1937 "City of Tomorrow" project for the Shell advertisement campaign, for instance, reveals an evolving vision of an American utopia that focused on the future of high-speed travel and eventual transformations in urban geography.[14]

When Bel Geddes presented his Futurama ideas to General Motors' executives, there was an immediate convergence of mutual interests and strategies. From General Motors' viewpoint, Bel Geddes's concept promised a new public relations strategy and a triumph in advertisement masquerading as utopia. Roland Marchand notes, as the advertising industry became increasingly sophisticated during the 1930s, corporate exhibitors realized that the public's fascination for their products could be best cultivated not so much by crude non-participatory displays of their products but rather by involving the public experientially with their vision of a better world (of course, made possible by

[14] Jeffrey L. Meikle, *The City of Tomorrow: Model 1937* (publication information unavailable).

their products).[15] When Bel Geddes proposed an active participation of spectators in the Futurama by means of a simulated "flight" over an America of 1960, General Motors executives could not fail to comprehend the leverage of such a display technique. As they saw it, Bel Geddes's project granted spectators a synoptic view of a national highway system that (covertly) guaranteed a manifold increase in General Motors car sales. More importantly, the Futurama's virtuoso engineering lent credence to General Motors' commitment to the *future,* a commitment aptly demonstrated by the Futurama's bold aviation theme.

Limiting the Futurama within its corporate sponsor's strategic vision, however, would imply a failure to see the exhibit's broader relation to Bel Geddes's own avant-garde aspiration that drew on, as I suggested earlier, an aviation-inspired modernist visuality. To unravel the complexity of such a relation, a number of questions need to be addressed. What was Bel Geddes's challenge in transforming a utopia—predominantly a literary concept—into a three-dimensional exhibit without losing the sense of its visionary character yet projecting it as tenable in the near future? If the Futurama's conveyor system simulated a continental flight, how did such a flight signify shifts in spectators' visual perception? Turning the question on its head, how did those shifts

[15] Marchand, "The Designers Go the Fair II: Norman Bel Geddes, The General Motor's "Futurama," and the Visit to the Factory Transformed."

construct an observing subject in resonance with Bel Geddes's evolutionary interest in the "Man of Tomorrow," or with 1930s visual culture?

A closer look at the project reveals a broader context for addressing these questions. The Futurama's drama began when spectators entered the atrium of the General Motors Building through a series of serpentine ramps (**Fig. 63**). If the Futurama was a performance, then its sequence suggested the rituals of a contemporary airport and boarding an airplane. An enormous illuminated map of America, seemingly suspended in the air, preemptively suggested the scope of the journey spectators were about to embark upon.[16] While spectators contemplated America's geography, a procession of chairs on a conveyor belt sliding on a concealed track gently approached the atrium. Spectators stepped onto a moving floor that went forward at the same speed as the moving chairs, allowing them to take their seats. Their vision was controlled on each side by wide wings extending forward from the back of the chair. Passing a darkened space, 552 spectators seated on the conveyor belt began a Jules Verne-esque *voyage extraordinaire* over a one-acre model that Bel Geddes termed the "world of tomorrow." The chairs rotated from time to time during the course of travel so that spectators could survey the gigantic spectacle below. The spectator's line of sight shifted between 45 and 90 degrees to the line of travel depending on the

[16] The most eloquent description of the Futurama can be found in Norman Bel Geddes, Job File No. 381.30 and Job File 381.48.

elevation of the conveyor belt in relation to the sprawling model. The Futurama spectators gazed down at rapidly shifting scenes: miniature cities, rural farms, university campuses, power plants, highways, amusement parks, and airports. A journalist contributing to *The Sun* shortly after the fair's inauguration recorded his experience of the Futurama thus:

> The chairs slide onward and presently the first vista of the Futurama unfolds itself as it might be seen from a low-flying plane, speeding up a beautiful valley. Miniature towns and cities lie there, set forth in marvelous detail. Factories send up their smoke and electric derricks work in the yards. Hundreds of thousands of homes – farms and apartments and country estates – lie in great cities, in towns, and in rural scenes. Rivers flow to the sea, suspension bridges cross them. And everywhere there is the constant never-ending flow of automobile traffic...The illusion of traveling hundreds of miles at vibrationless speed in some amazing plane of the future is complete. It's almost like a guided tour by air over the continent. The chairs mount sometimes at a sharper degree of curvature and then go evenly down into a lower level. Step by step the whole world of the future passes beneath. Streamlined trains, daring in design, slide into tunnels under high mountains and emerge to climb through the snowy peaks. Great transport planes lie in the airports while automobiles speed between railroads and airfields. In precise accents, changing without a fault from scene to scene, the sound system expounds the theory of each development...[17]

The encyclopedic scope of Bel Geddes' s veritable paradise could unfold itself only to the all-encompassing eyes of a *dieu voyeur*. A recorded whispering narration, synchronized with the chairs' movement along the conveyor belt, explained in rhapsodic language what the spectator saw as if from an airplane. The following examples of Bel Geddes/General Motors-sanctioned auditory

---

[17] Quoted in Barbara Hauss-Fitton, "Futurama, New York World's Fair 1939-40," in *Rassegna* 60 (1994): 56.

comments that guided the spectator in the eighteen-minute trans-continental journey reveals that the Futurama was conceived of as a grand aerial epic (**Fig. 64 & 65**):

> Directly ahead is a modern experimental farm and dairy. Note the terraced fields and strip planting. The fruit trees bear abundantly under the individual glass housings. Here is an aeration plant purifying the lake water and distributing it hundreds of miles throughout the countryside.
>
> Now we approach a modern university center. Here, in buildings of simple but functional architecture, the youth of 1960 study for their future in a world of still greater progress and achievement.
>
> Looming ahead is a 1960 Motorway intersection. By means of ramped loops, cars may make right and left turns at rates of speed up to 50 miles per hour. The turning-off lanes are elevated and depressed. There is no interference from the straight ahead traffic in the higher speed lanes.
>
> Night falls on the countryside. But, what's this just ahead? An amusement park in full swing. A merry-go-round—a ferris wheel—boys and girls shrieking with glee on a pretzel-like sky-ride. Here' s fun and merriment in this world of tomorrow.
>
> Just as improved highways have benefited the farmer, so have they added to the comforts of living and economic welfare of those in industrial communities. Here is a prosperous and thriving steel town...
>
> Now we are traveling high above the mountains and valleys below—a bird's-eye view of a paradise for vacationers. With the fast highways of 1960, the slogan 'See America First' has taken on new meaning and importance.
>
> Contrast the straight, unobstructed path of the Motorway at the right with that of the twisting, winding, ordinary road to the left of the quiet and peaceful monastery. One marvels at the complete accord of this man-made highway with the breath-taking scenic beauty of its route.
>
> Just beyond is a miracle in engineering—a giant mountain lake dam with its spillway, companion buildings. And hydro-electric power plants, providing service for hundreds of miles around.

The *voyage extraordinaire* across the America of 1960 continued with a descent from the mountains on "the various lanes of the Motorway" (a spatial effect produced by the partial enlargement of the model's scale as well as by lowering the conveyor belt's elevation) towards a towering metropolis of the future. As spectators zoomed in, "the city of 1960, [with its] abundant sunshine, fresh air, fine green parkways, recreational and civic centers—all the result of thoughtful planning and design" unfolded itself in front of the spectator's all-seeing eye.[18] The conveyor system eventually descended to a life-size street intersection animated by General Motors automobiles, giving spectators a sense of arriving at the very heart of the city from the air (**Fig. 66**).[19] As Bel Geddes noted in his book *Magic Motorways* (1940): "The visitor to a great American city in 1960 approaches it by air, in order to see the layout of the new design more readily."[20]

While presenting his Futurama ideas to the General Motors executives, Bel Geddes reiterated that his project was conceived as a "scientific and educational" panorama viewed through the eyes of a spectator "as though he were in an airplane."[21] From the beginning of the model's construction, Bel Geddes

---

[18] Norman Bel Geddes, Job File No. 381.48, pp. 3-4.
[19] Bringing in aerial transports to the center of the city was an integral component of modernist city planning.
[20] Norman Bel Geddes, *Magic Motorways* (1940)
[21] Norman Bel Geddes Archive, File No. 381.3, p.6

remained meticulous about making his utopia an aerial spectacle.[22] The model was in fact constructed as 408 separate topographic tables, produced after careful studies of aerial photographs provided by the pioneering company Fairchild Aerial Surveys.[23] In these photographs, Bel Geddes and his staff studied the scale and environmental effects of various geographic and urban elements when seen from an airplane. Bel Geddes even had his staff take notes on the airplane as they viewed the sprawling geography below and the various "stories" that took place in it. Such notes as the following provided a guideline for making the model as a series of bird's-eye scenes: "When you see roads at certain angles in the far distance, no matter what the roads are made of they appear to be grayish-white," "Examples of activity which we saw at 500 feet: Man throwing food to chickens which clustered around him, cows drinking, cows lashing and swinging tails, and a horse and wagon moving slowly along with a man walking beside it," "Red is the predominant color in both city and country," "There is an appalling uniformity of houses and appalling density and quantity of buildings in the city – they stretch out as far as you can see without thinning out at all," and "Once the city stops it ends quite suddenly and real country starts – the city doesn't gradually thin out."[24] These aerial "anecdotes" were then re-inscribed in

---

[22] Norman Bel Geddes Archive, File No. 381.7.
[23] Norman Bel Geddes Archive, File No. 381.42.
[24] Norman Bel Geddes, Job File No. 381.7 (November 2, 1938).

the model by manipulating the model's scale, light, and color, and re-experienced by spectators as they hovered over the world of 1960.

5.3 Considering a Modernist Subject in the Futurama

That flight as an optical enterprise became an integral part of Bel Geddes's utopian imagination was reflected by his superimpositions of cutout airplanes on key Futurama photographs for publicity purposes as well as for the General Motors brochure (**Fig. 67**). The conveyor system, designed by Bel Geddes and constructed by Westinghouse Elevator, was then thematized as a surrogate "airplane eye"—to cite Le Corbusier—through which the Futurama was conceived as an aerial epic. "It is a spectacle," claimed Bel Geddes, "that unfolds a new kind of civilization in which industry, finance and labor will all find greater employment – a vision of new frontiers of progress waiting to be conquered by those who will pioneer around the corner of tomorrow."[25]

Post-Futurama media hype seized on Bel Geddes's vision of a new "frontier." The metaphoric use of "frontier" to describe the Futurama connects the 19th-century American frontiersman's encounter with the West to the mindset of the 20th-century aviator, privileged with yet a grander vista than his 19th-

[25] Norman Bel Geddes, Job File No. 381.48 (General Caption).

century counterpart.[26] As evidenced in the genre of 19th-century landscape painting depicting the American West, the frontiersman's experience of the sublime in the landscape often occurred, as Albert Boime argues, on the heights.[27] Standing on a hilltop or a valley in an iconic posture, the frontiersman looked at the sublime panorama below and expressed his will to dominate the "uncivilized" tracts (**Fig. 68**).[28] To frame Bel Geddes's Futurama in terms of a new "frontier" paradigm is to invoke the frontiersman's expansionist dream, which would eventually become the 20th-century aviator's strategy of coordinating space within a coast-to-coast planning of America.

Searching for an originary point for his utopia, Bel Geddes's own aerial gaze focused—in line with his frontiersman progenitor looking at distant lands—not on well-developed coastal urban centers, such as his own hometown New

---

[26] One of the central themes in the media frenzy in the aftermath of Charles Lindbergh's transatlantic flight was the so-called discovery of a "new frontier." Survey magazine harked back to Walt Whitman's poem for the title of an article on Lindbergh, "O Pioneer," thereby evoking the masculine image of the frontiersman in the American West. See John William Ward, "The Meaning of Lindbergh's Flight," in *Red, White, and Blue: Men, Books, and Ideas in American Culture* (New York: Oxford University Press, 1969), p. 26.

[27] Albert Boime, *The Magisterial Gaze, Manifest Destiny and American Landscape Painting c. 1830-1865* (Washington and London: Smithsonian Institution Press, 1991), pp. 1-6.

[28] The psychological conditioning of the frontiersman's "magisterial gaze," could be explicated, for instance, by what Kant calls the "mathematical sublime." Kant proposes the mathematical sublime as the sense perception resulting from a visual encounter with extreme magnitude or vastness, such as the view from a mountain. As opposed to the dynamic sublime, which, as Kant maintains, concerns the contemplation of scenes that incite terror, such as a tempest at sea, the mathematical sublime involves pushing the spectator's visual field to extreme limits. In confronting this stretch of visual field to extremity, Kant's observer first experiences insignificance, but eventually regains a sense of superior self-worth as the mind perceives things even larger and more profound than the senses can comprehend. In the case of the frontiersman, the initial insignificance experienced in front of the panorama of "unspoiled" wilderness eventually transforms into a colonialist desire for territorial expansion.

York, but on America's geographic center, the relatively underdeveloped Missouri capital St. Louis, from where the phoenix of civilizational renewal would rise. A Futurama publicity leaflet claimed: "In choosing St. Louis, Mr. Geddes states that he wished to use a typical American City of metropolitan proportions, especially one situated inland to be away from the peculiar conditions appertaining only to port towns, and yet a city confronted with the problems of transportation by water as well as by land and air."[29] Coastal cities had long been corrupted by shiploads of Old World colonialists, so civilizing the New World (figuratively resurrected as the 1939 World's Fair's "world of tomorrow") would now entail a direct (and unadulterated *sans* commingling with the landscape) right to the heart of the continent. Bel Geddes's flight of fancy promised just that.

If the 19th-century frontiersman's gaze from the summit of a mountain embodied the colonialist dream of an expanding republic, the Futurama spectator's aerial vision foretold the transformation of the American continent into Bel Geddes's veritable paradise, one that was rationalized into a grid of hyper-urbanized nodes facilitating a capitalist market economy. Such quasi-clairvoyant imaginings were certainly reassuring for the Futurama's spectator when American life was ricocheting between Depression anxieties and hopes for

[29] Norman Bel Geddes Archive, Job File 381.48 (St. Louis A Model City of the Future), p. 1.

future prosperity. The Futurama's all-encompassing sublime aerial narrative promised the continental sprawl of a man-made environment as an antidote to an economically troubled decade as well as a spatial blueprint for an ideal society. Conversely, Bel Geddes's fantasy of creating an ideal society by planning a schema of continental infrastructure—ranging from a 14-lane, two-directional continental highway system to genetically-enhanced, glass-encased fruit trees—could not have materialized without ascending above earthbound life. The Futurama's conveyor system clinically detached its spectators from the messy reality of 1930s America, a detachment that made it easy for spectators to celebrate Bel Geddes's utopian dream.

But one still suspects whether the aerial viewing of Bel Geddes's utopia signifies anything beyond optical thrills and pre-Disney entertainment. Bel Geddes himself claimed that the Futurama's illusion of flight set "all eyes to the future." The project flitted around the practice of aerial viewing as a perceptual mode of articulating a wide network of spatial knowledge. The conveyor system indeed engineered a visual system that enabled the spectator to navigate and appreciate encyclopedically the scope of Bel Geddes's utopia, a system that

cultural historians suggest "became an accepted way of introducing a 'visitor' to an unfamiliar utopian city of the future."[30]

The Futurama's system of gazing down at the world of tomorrow was uncannily similar to Wells's or Ferriss's deployment of the airplane and balcony views as literary and graphic devices to predict the future cosmopolis. Graham, Wells's protagonist in *When the Sleeper Wakes*, who explores the vast utopian city from the window of his "aeropile" was conceptually no different from the mysterious, solitary figure through whose eyes Ferriss frequently depicted his *Metropolis* (**Fig. 69**). Fritz Lang and Dziga Vertov, among others, also wove their concepts of the modern metropolis by lifting the camera above their objects of inquiry.[31]

Taking flight as a mode of seeing the future of course can be traced back to *fin-de-siècle* speculative fictions. Such literary devices as aerial journey, time travel, long slumber, hallucination, accident, and immortality were employed as ways to transport the narrator-observer to a utopia or dystopia.[32] As Frank and Fritzie Manuel argue in their book *Utopian Thought in the Western World*, utopias have to be left with "shadowy boundaries"; that is, as hypothetical situations

---

[30] Folke T. Kihlstedt, "Utopia Realized: The World's Fairs of the 1930s," in Joseph J. Corn, ed., *Imagining Tomorrow: History, Technology, and the American Future* (Cambridge: The MIT Press, 1986), p. 107.

[31] Fritz Lang, *Metropolis* (1926); Dziga Vertov, *The Man with the Movie Camera* (1928).

[32] Jean Pfaelzer "The impact of political theory on Narrative structures" in Kenneth M. Roemer, ed., *America as Utopia* (New York: Burt Franklin and Co., 1981), p. 117.

utopias are far removed from our epistemological consciousness, and as a prematurely resolved political system, the path to utopia could at best be shrouded in mystery.[33] Thus, even a hypothetical "arrival" at the utopia demands an equally utopian mode. The protagonist Julian West in Edward Bellamy's *Looking Backward* (1888) fell asleep for more than a century only to mysteriously wake up in a utopian, techno-rational Boston. The Futurama spectator's simulated aerial voyage to an American utopia in many ways was an extrapolation from West's reawakening in an inexplicably transformed Boston. West's slumber and the Futurama spectator's flight cleverly evaded how to get across utopia's shadowy boundary. The cover of the 1926 edition of *Looking Backward* shows a heroic West perched on a high-rise balcony gazing down on a new Boston (**Fig. 70**). West indeed became a literary reconstruction of Bellamy's own vantage-point to narrate his utopia just as the Futurama spectator resurrected Bel Geddes's exulted, exclusive position to envision the world of tomorrow. In another instance, it was through Bert Smallways's anxious zeppelin observation that Wells narrated a 20th-century apocalypse prompted by the German aerial bombardment of New York City.[34] Ferriss's *Metropolis* series more than anything else linked the aerial gaze from high-rise terraces or from an

[33] For instance, Frank E. and Fritzie P. Manuel provided the example of Thomas More's Utopia: "Thomas More himself could not get straight the exact length of the bridge that spanned the River Anydrus as Amaurotum in Utopia." Frank E. and Fritzie P. Manuel, *Utopian Thought in the Western World* (Cambridge, MA: The Belknap Press of Harvard University Press, 1979), p. 5.
[34] Wells's *The War in the War* (1908).

unseen airplane between the canyons of the vertical city to the period's Olympian urban imagination. Just as Ferriss's, the Futurama's aerial gaze not only opened an all-encompassing window on the "world of tomorrow," but it also became ideologically intertwined with the spectator's promethean desires for urban and, ultimately, civilizational renewal.

By elevating spectators above the object of their curiosity, the Futurama promised a full disclosure of the world of tomorrow, a disclosure that appealed to the modernist desire to see things with the logic of rationality, order, and clarity. From high above, Bel Geddes's world of tomorrow could not have been more photogenic and convincing. It appeared to be a total artifact, complete with life's every imaginable necessity. Such visual practices became part of the modernist fantasy of planning, a creative illusion that by ordering things and spaces in neat categories the usual chaos of humanity could be dispelled. For Bel Geddes, such visual practices, then, were means to prove the efficacy of his utopia as it played itself out against what he characterized as chaotic urban sprawl. Bel Geddes wrote in his Futurama manifesto:

> As the spectator circles high above the city he is able to compare the congested, badly planned areas of the 1930's with the well-organized districts of the newer city. He is directed to the portion of the city immediately below him. Here he sees, in contrast to the congested mass of the old portion, more green space and a more open distribution of buildings. The parks of the city have continuity and proper placement...A thick cloud obscures the view for a second and when it passes, the spectator sees...city blocks designed on a unified grid system, each block a complete unit in itself...he sees skyscrapers, sheathed in glass, the thin

> shafts of the tallest ones reaching more than a quarter of a mile in the air...The tall buildings are spaced far enough apart so that shadow of one does not fall on an adjacent one, and the maximum amount of light and air is assured. Many of the buildings are provided with landing roofs for helicopters and autogyros...Parks occupy one third of the total city area and cover entire blocks and groups of blocks...Outside the commercial and business districts of the modern city, are the housing developments, reaching out into the residential areas...As the ride ends, the spectator alights from his sound chair and walks through the exit into the world of today.[35]

"The exit into the world of tomorrow" was destined to be the heroic finale of the Futurama's visual program. After the eighteen-minute flight above the world of tomorrow, the desire to land right at its center proved too great a temptation to ignore. While upon arrival spectators experienced only a life-size vertically stratified traffic intersection, the sense of "arrival" itself rallied the *espirit de corps* of spectators behind Bel Geddes's utopian dream: the perfect world of tomorrow as early as 1960!

By having spectators literally "arrive" at the world of tomorrow, Bel Geddes suggested that an American utopia was just around the corner (and of course, the creator of that utopia was nobody other than himself). In this sense, Bel Geddes's particular brand of "world-of-tomorrow" imaginings departed from the faithful subscription to the future as a foreordained reality. For Bel Geddes, and more generally for the 1939 Fair, the *future* became a discursive arena in which aesthetics would mobilize political visions. It was now an

---

[35] Norman Bel Geddes, Job File No. 381.48, pp.6-10.

omnipotent "hero" that the *future* awaited for its magical rebirth. At the end of the flight, the Futurama spectators coming down to the world of tomorrow painted a poignant picture of the hero's coming home and building an ideal world. One cannot but reminisce about the frenzied mob reception of Charles Lindbergh in New York in the aftermath of his maiden transatlantic flight and the ensuing prophesies about "a defining moment," "American masculinity," "the new era," etc.

The idea of an impending perfect World of Tomorrow, as well as heroes who would bring it about, was a kernel modernist myth. The same year the Futurama foretold the advent of the World of Tomorrow, Sigfried Giedion theorized architecture's modernism in eschatological terms.[36] A new Millennium was upon us, one that manifested itself as the culmination of aesthetic evolution including, of course, a modern, functional, and socially beneficial architecture. One of the most persistent themes not only for Giedion, but for most of the other modernist apologists of the period 1920-1960, was the quasi-Biblical construct of a veritable paradise to be brought about by protracted aesthetic battles that a few, select larger-than-life heroes would wage. Le Corbusier's extension of his hand over the paradisiacal mathematics of *Ville contemporaine*, for example, signified not only the literal embodiment of the modernist planner's God-like

[36] Sigfried Giedion, *Space, Time and Architecture, the Growth of a New Tradition* (Cambridge: Harvard University Press, 1959 [1941]). Also see Colin Rowe, *The Architecture of Good Intentions, Towards a Possible Retrospect* (London: Academy Editions, 1994), pp. 30-43.

gaze, but also a magical unveiling of an impending utopia of bliss, hygiene, and moral living (**Fig. 71**). The Futurama spectator's eventual descent into the world of tomorrow carried similar ideological meanings: the dream of an American utopia was no longer a mere fantasy; the spectator-turned-creator's arrival signaled the very fulfillment of that dream.

In this sense, the Futurama's prophesies blurred the boundaries between what Frederick Polak proposes as two images of the future with which society defines its cultural aspirations.[37] One, the biblical, forecasts an eventual paradise that must be awaited and that is "another world in another time radically different from and, in being vastly ameliorated or even approaching perfection, which is absolutely preferable to the present one of the here-and-now."[38] Human attempts to replicate that terminal condition in which all political and social conflicts are divinely resolved are at best futile, at worst heretical. The other category, the utopian, at least tangentially engages the material world with the hope of shaping a superior ideal condition. "With the help of constructive imagination," Polak suggests, [this condition] "is shaped in such a way that it lends itself readily to mass-communication by its magnetic and suggestive appeal."[39] As the Futurama spectators descended to the smoothly functional

---

[37] Frederick Polak, *The Image of the Future*, Vol. 1-2 (New York: Oceana Publications, 1961).
[38] Polak, *The Image of the Future,*
[39] Polak, *The Image of the Future,*

traffic intersection of the World of Tomorrow, not only did they epitomize the exclusive omnipotent planners who designed that world from above, but they also metamorphosed the ineffable biblical paradise into an American "world of today."[40] Mortals, albeit ones that fly high like angels, could now build the ultimate paradise with the "tools of today!"[41] An official Futurama leaflet rhapsodized:

> With the imagination of a practical designer, the shape of the new world is spread out before you. Mother earth is the same, of course, as to mountains and valleys, and the streams that go down to the seas. But here and there are evidences of how she has been harnessed and made to do man's work so as to increase his wealth, add to his comfort and give him more leisure. Great water projects, flood control stations, terrace lands to prevent erosion and intensified farming under glass. And connecting all this is the Norman Bel Geddes Motorway, a system of shining threads stretching across the continent...[42]

Did such a vision reveal as much about an *exclusive* modern subject (privileged with views that no earthbound viewer has) as it does about the utopia itself? If Bel Geddes's world of tomorrow was a grand aerial epic, then that epic also suggested an omnipotent aerial spectator, who broke free from all sorts of claustrophobia and earthly limitations. The Futurama's visual legibility

---

[40] Howard Segal locates this shift in attitude towards utopia in the 1893 White City in Chicago that represented "the beginning of a shift from literary blueprints of utopias to architectural and engineering ones; from the vision of a distant future utopia of a century or more hence, to the realization of utopia in the near future only a few decades away; from small communities and pastoral suburbs to large cities and closely connected suburbs; and from a variety of panaceas for America's problems to just one: technology." See Howard Segal, "Utopian Fairs," *Chicago History* (Fall 1983): 7.

[41] In fact, the 1939 New York World's Fair began with a slogan: "Building the World of Tomorrow with the Tools of Today."

[42] Norman Bel Geddes Archive, Job File 381.48, pp. 2-3.

as a total artifact depended on the elevated spectator's God-like ability to see how individual elements—from a triple-tier suspension bridge to genetically modified glass-domed trees, from recreation parks to hydroelectric power plants—fitted neatly within a utopian schema. Without that all-seeing gaze, there was no Futurama; hence, the practitioner of that gaze became as important as Bel Geddes's World of Tomorrow itself. The construction of avowedly idealistic practitioners of aerial spectatorship constituted the most significant component of Bel Geddes's futurist aspirations. In other words, Bel Geddes sought to represent spectators hovering over the Futurama's World of Tomorrow as none other than that paradisiacal world's creators, each a modern-day Daedalus. From their detached vantage points, the world below ironically attained utopian simplicity that seduced them into believing in their own exalted role in reshaping a seemingly chaotic world. In doing so, these heroes in fact rehearsed the self-aggrandizing visual practices of modernist planners, reverberating in the *arche*-planner Le Corbusier's heady proclamation: "For one day soon the implication of the bird's-eye view, that nobility, grandeur and style should be brought into the plan of our cities, will be a fact."[43]

These were, though, the halcyon days of unbridled hero-worship. If the Futurama's aviating spectators represented the all-seeing planners of the World

---

[43] Le Corbusier, *Aircraft* (London: The Studio Publications, 1935), p. 13.

of Tomorrow, then one of their progenitors was of course Charles Lindbergh. Post-Lindbergh media hype spun the heroics of the maiden transatlantic flight as a defining moment in the search for an ideal American male. Such a search was consistent with the cultural codification of the New Man that had already gained wide currency in the avant-garde imagination by the early 1920s. The emphasis on a light, highly evolved, and strong body was central to the New Man discourse. The aviator, rising against nature's force as if by sheer physical power, literally and figuratively became the discursive site for rehearsing the interwar culture's New Man aspirations. In search of the New Man—more so during the bleak time of the Depression—interwar American advertising, literature, and visual culture variously equated the aviator's anti-gravitational force with authoritarian moral qualities and his airborne body with new forms of scopic power, or even clairvoyance. Just a year before the 1939 New York World's Fair, the aviating comic hero Superman literally became *the* fantastic projection of such attributes. Endowed with a moralistic God's-eye view of the world, not only did Superman police the boundaries of good and evil, but he also became the most conspicuous inhabitant, and was eventually perceived as the *de facto* builder, of the future city.[44] Against the backdrop of the Futurama's heady

[44] When asked to name the city where Superman would make his home base, Jerry Siegel and Joe Shuster, the creator of the comic hero, chose nothing other than Fritz Lang's "Metropolis." It was through the eyes of Superman that interwar visionary cities were often depicted. Superman was

promise of a World of Tomorrow, Superman appeared convincing as the builder and protector of that utopian world (**Fig. 72**). Was Bel Geddes's conveyor belt, then, an assembly line for mass-producing Supermen?

The concept of the hero, however, was much more complicated when seen through the particular sentiment of Depression-era America. The hero of the 1930s was not necessarily an archetypal he-man; he was extrapolated from the peculiar social and cultural contours of the era. In *The Yale Review*, Lawrence Levine cogently argued:

> Fantasies, of course, were not new to the 1930s, but the nature of the prevailing fantasies is revealing. Superman had existed before in American culture. The super heroes of the mid-nineteenth century were concerned with overcoming the environment. Real people might have to struggle with the vastness of nature in America; their super fantasies, like the folk figures Mike Fink and Davy Crockett, did not: they could cross rivers in a single stride, uproot trees with a single yank, conquer wild animals with their bare hands. One hundred years later, the concern had shifted from the environment to the bureaucracy, from nature to society. The people of the 1930s might be confined by institutions, might have to respond to them and through them, but they could relieve their tensions and express their feelings through their super projections. Thus though Superman and his clones functioned with the consent of the law, they operated outside it. Nowhere is it recorded that Superman stopped for a writ of habeas corpus before breaking down walls to capture the criminals. The popularity of Superman symbolized public unrest with the institutions and bureaucracies that more and more shaped the contours of everyday life.[45]

Here, we have an image of the hero as an urban operative. His action concerned urban society. With a highly evolved intellect, Superman was always seen

---

frequently seen hovering over and between the canyons of vertical cities. See Les Daniels, *Superman: The Complete History* (San Francisco: Chronicle Books, 1998): 27.

[45] Lawrence W. Levine, "American Culture and the Great Depression," *The Yale Review* 74 (1985): 220-21.

rectifying urban ills and navigating the secret alleys of urban bureaucracies. His evolution seemed parallel to that of the city itself, each representing the other. This hero personified the builder of a new urban civilization, just as Bel Geddes's hero did.

Bel Geddes defined his conception of the "man of tomorrow" through the lens of Darwinian evolutionary aesthetics, as well as through Spencerian and neo-Lamarckian ideas of racial and sexual hierarchy.[46] His hero was endowed with highly evolved cerebral capacity and considered himself superior to ordinary folks. He (it was, of course, an exclusively masculinist discourse) looked at, and acted upon, the world from above through the eyes of an aviating hero like Superman or Ferriss's mysterious solitary figure. His hero's exalted vantage point—i.e. the Futurama's conveyor belt—became inseparable from authoritarianism and self-serving hubris. The conveyor belt was in fact a narcissistic reconstruction of his elevated self, the *dieu voyeur* of the World of Tomorrow. The world of tomorrow that spectators saw was, therefore, Bel

---

[46] In a recent article, Christina Cogdell has demonstrated the influence of eugenics in Bel Geddes's conception of the future "man," as well as of the "world of tomorrow. Eugenicists abhorred and rejected all sorts of presumed defects of the body as nothing other than reflections of inner genetic malfunction. Instead, they sought functional, hygienic, and physically fit bodies as the basis of a superior future race. Eugenicists believed that the object of natural evolution--the man--could become an object of rational selection by means of controlled breeding, thereby technologizing the fundamental balancing feature of the natural law of evolution and improving society through gradual elimination of the unfit. In the first decades of the 20th century, belief in Darwinian evolutionary principles regarding the progress of species and of man enjoyed renewed vitality. Christina Cogdell, "The Futurama Recontextualized: Norman Bel Geddes's Eugenic 'World of Tomorrow.'" *American Quarterly*, Vol. 52, No. 2 (June 2000).

Geddes's own (and perhaps General Motors' also) *exclusive* all-too-happy World of Tomorrow, conceived through the clouds. Not surprisingly, the Futurama was devoid of slums and of any deviance from order, as was Le Corbusier's aerially photogenic *Ville contemporaine*.

In a characteristic manipulation of photographs that graced a 1939 World's Fair brochure celebrating the Futurama, Bel Geddes replaced the heads of the Futurama's "ordinary" spectators with those of the real power brokers of the New York political scene, such as John D. Rockefeller Jr., Robert Moses, New York Mayor Fiorello La Guardia, and the fair's president Grover Whalen, thus providing a literal as well as symbolic face to the sense of self-empowerment that the Futurama spectators experienced (**Fig. 73**). Bel Geddes's message was clear: with their commanding aerial gaze, these powerful men could contemplate their own role in shaping their utopias, just as Bel Geddes could mull over his own.

While such visual practices resonated with the same heroic idealism that laid the foundation for Depression-era America's corporate longing for a glittering future, they were by no means representative of the 1930s. In sharp contrast to these privileged men's aerial gaze, there were alternative gazes fraught with the era's anxiety and despair. One cannot but recall Steinbeck's Ma Joad, the populist representative of the marginal *people* inhabiting lonely streets, empty farms, and impoverished backlands. Although Bel Geddes's all-seeing

aerial vision left no convenient back alleys for them to hide in, the so-called fringe people refused to go away. That refusal was most poignantly portrayed in the final defiant speech by Jane Darwell, playing Ma Joad in Ford's film version of Steinbeck's *The Grapes of Wrath*: "We're the people that live. Can't nobody wipe us out. Can't nobody lick us. We'll go on forever. We're the people."[47] Steinbeck's was, of course, an idealizing of the *people*—the common folks—as Susman argued. In many ways, the people in the Steinbeckian sense, represented a counterforce to the privileged Futurama spectators, perched on authoritarian positions to survey at once the world below and their own exalted selves. Bel Geddes's utopia, legible only to their exclusive aerial gazes, resonated with the presence of its surrogate creators masquerading as spectators.

[47] Quoted in Warren Susman, "The People's Fair: Cultural Contradictions of a Consumer Society," p. 18.

Conclusion:

Conclusion:

Historians have usually examined utopias to reflect on the socio-cultural and ideological structures that produced them. Focusing on the Futurama by the industrial designer Norman Bel Geddes, my dissertation has instead analyzed the very method of seeing a utopia, not only accounting for how the utopia was perceived, but also illuminating the spectator that this utopia constructed. I have argued that Bel Geddes's method of seeing the Futurama from a simulated airplane revealed as much about a culturally valorized aviator hero as it did about the utopia itself. The Futurama's spectator, gazing down spellbound at an idealized "World of Tomorrow," epitomized an omnipotent corporate subject, detached from the conflicting realities of the 1930s.

The Futurama was a clever corporate advertisement that reflected the broader shift in 1930s strategies of display. Bel Geddes devised a way to engage spectators with General Motors' programs and products—not by urging them to witness the laborious processes of production, but rather by offering them a chance to *participate* in the corporation's ebullient vision of the future. I have contended that the Futurama and its aerial perspective resonated with the same heroic moralism that laid the foundation for corporate America's portrayal of a prosperous future during the Depression era.

By demonstrating how the Futurama spectator's aerial viewing became enmeshed in broader 20th-century modernist visuality, my dissertation has revealed the crucial presence of an aesthetics of ascension in the avant-garde imagination. The Futurama was one of those modernist utopias that ideologues like Nietzsche, Wells, and arch-modernist Le Corbusier visualized [as I have shown in chapter three] through the eyes of an ascending protagonist. Histories of modernism have often overlooked the exalted presence of this protagonist in favor of focusing on the aesthetic object itself. Analyzing Hugh Ferriss's *Metropolis*, for example, requires considering the solitary hero through whose eyes Ferriss depicted his vision of the future city. My study demonstrates that modernism is as much about a self-consciously future-oriented subject who looks at the modernist world as it is about that world itself. Analyzing this observing subject exposes the complexities of the particular visual field within which a utopia could be formally structured.

My dissertation argues that Bel Geddes's World of Tomorrow was conceived through the eyes of the aviator, an interwar protagonist. This protagonist's aesthetic experience of altitude appealed to the encyclopedic ambition of modernist planners, particularly in light of modernism's prescriptions of rationality, clarity, and order as panacea for human problems. As I have tried to demonstrate in chapter two, the emergence of aerial survey

and aerial photography, as well as their enthusiastic reception in popular magazines during the interwar period, fused the concept of the aviator with a new type of aerial urban *flânerie*. Not only did the aviator's perspective reinterpret the street-level experience of urban spaces, it also became a common visual system for introducing an unfamiliar viewer to a future city. The avant-garde aesthetes, as well as pulp literature, propagated the image of the aviator as a Superman capable of God-like vision of the world. George Bernard Shaw first coined the term "Superman" in 1903 as a translation of Nietzsche's *Übermensch,* and the aviation magazines frequently used it in the 1910s to describe an aviator, well before DC Comics co-opted the term for their own hero. Bel Geddes's documented interest in evolution and the concept of the "New Man" found its logical outcome in the aviating superhero. Was Bel Geddes's conveyor belt in the Futurama, then, an assembly line for mass-producing Supermen? Superman's omniscient downward gaze at the futurist city offered a metonymic image of the modernist planner himself, intent on rectifying the physical and social disorder below. For Norman Bel Geddes, the aviator's vision was a conceptual tool that enabled him to display his utopia as a *total* artifact, a visual mastery that would have been impossible from within the "prison-world" visual field of an earthbound spectator, to use Walter Benjamin's terms. In other words,

Bel Geddes perceived his utopia as a grand aerial epic, legible only to an exclusive, detached aerial spectator.

Bel Geddes cast the Futurama's spectators in the role of aviators, who looked down at the World of Tomorrow with an omnipotence no less than that of its creators. My dissertation demonstrates that Bel Geddes's creation of such spectators replicated the same visual supremacy that lent ideological potency to modernist planners. From their God-like viewpoints the messy world below attained a utopian simplicity, affording modernist planners the illusion that they could impose a neat physical order on the world and eventually produce an ideal society. As prophecies of an impending world of hygiene, aesthetic perfection, and social discipline flourished near the clouds, the modernist planner's gaze became synonymous with exclusivity, elitism, and detachment from the "ordinary practitioners" (to use Michel de Certeau's terms), who were steeped in the pathologies of the ground. This detachment ultimately made it easy for them to recommend the wholesale demolition of cities and to propose grand renewal schemes. In a Futurama photograph, Bel Geddes replaced the heads of the Futurama's "common" spectators with those of the real power-wielders of the New York political scene, such as the New York Mayor Fiorello La Guardia, John D. Rockfeller Jr., Robert Moses, and the Fair President Robert Whalen; there

could be no more telling example of Bel Geddes's portrayal of spectators as modernism's protagonist planners.

As an example of modernist utopias, Bel Geddes's Futurama demonstrated that interwar modernism's theoretical basis began with promises of ascension. These promises were encoded as a series of ideological shifts: from the particular to the universal, from architecture's weightiness to the aesthetic category of lightness, and, literally, from the banal crowd in the street to the exclusive band of messiahs in the sky. Aviation's anti-gravitational technology enabled modernist aesthetes to define modernism's emancipatory fantasies in ascensional terms. Bel Geddes's hovering conveyor belt was a theatrical reconstruction of the modernist planner's downward gaze at a *tabula rasa* that awaited his grand and moralistic intervention. The Futurama's aesthetics of ascension offers a new context for understanding modernism's redemptive aspirations. When Frank Lloyd Wright proclaimed that he "saw the architect as savior of the culture of modern American society;...savior now as for all civilizations heretofore," he envisioned the architect in a Zarathustra-like position high above the world that he promised to salvage.[1] This ascensional spirit that animated modernist architects and planners masqueraded as 20th-century modernity itself.

---

[1] Frank Lloyd Wright, *A Testament* (New York: Horizon Press, 1957), p. 24.

The airplane eye that Bel Geddes deployed was the same eye of misguided authoritarianism that would characterize slum clearance and urban renewal in postwar America. Armed with sophisticated technologies of aerial reconnaissance, the "surgeons" of postwar urban America [well within Bel Geddes's two-decade time frame for materializing the Futurama's prophecies] unleashed a campaign of cosmetic cleansing, seeking to impose both visual and social hygiene onto American cities. This approach was later condemned with the now-clichéd phrase "planning from above." Just as the Futurama's spectator envisioned a perfectly cleansed world, urban visionaries of postwar America sought to erase slums, crime-ridden low-income neighborhoods, and urban congestion.

On one hand, there was an innocent self-assurance about the Futurama and the grand (re)vision of America that it promised to its spectators. On the other hand, the Futurama was a crucial cultural artifact that revealed a surprising affiliation between aviation and modernism's logic of looking at the world. The self-aggrandizing, detached gaze of the modernist planner masquerading as the Futurama's spectator worked to dispel the anxieties of the 1930s; at the same time, this gaze also rendered most effective the fantasy of an ideal world of tomorrow. The heightened expectations that underpinned the Futurama's heroic gaze offered a populist analog to modernist promises of cultural renewal.

2003 will mark the centennial anniversary of Wilbur and Orville Wright's first powered flight. From Kitty Hawk to 9/11, the history of aviation paralleled those of modernism's ideological aspirations as well as the dark visions that it spawned. Despite the flurry of literature on the cultural history of aviation, the impact of flight on modernist aesthetics has received almost no scholarly attention. This omission is surprising, given that during the interwar period architects, planners, artists, novelists, and science-fiction writers registered remarkable interest in the airplane as a *trope* of modernity itself. My dissertation has aimed to make an important contribution to this little-explored field, repositioning not only Norman Bel Geddes's Futurama, but our understanding of early 20th-century modernist aesthetics as one in which an ascensional spirit, as well as its associated moralistic aspiration of rectifying the world, played a key role.

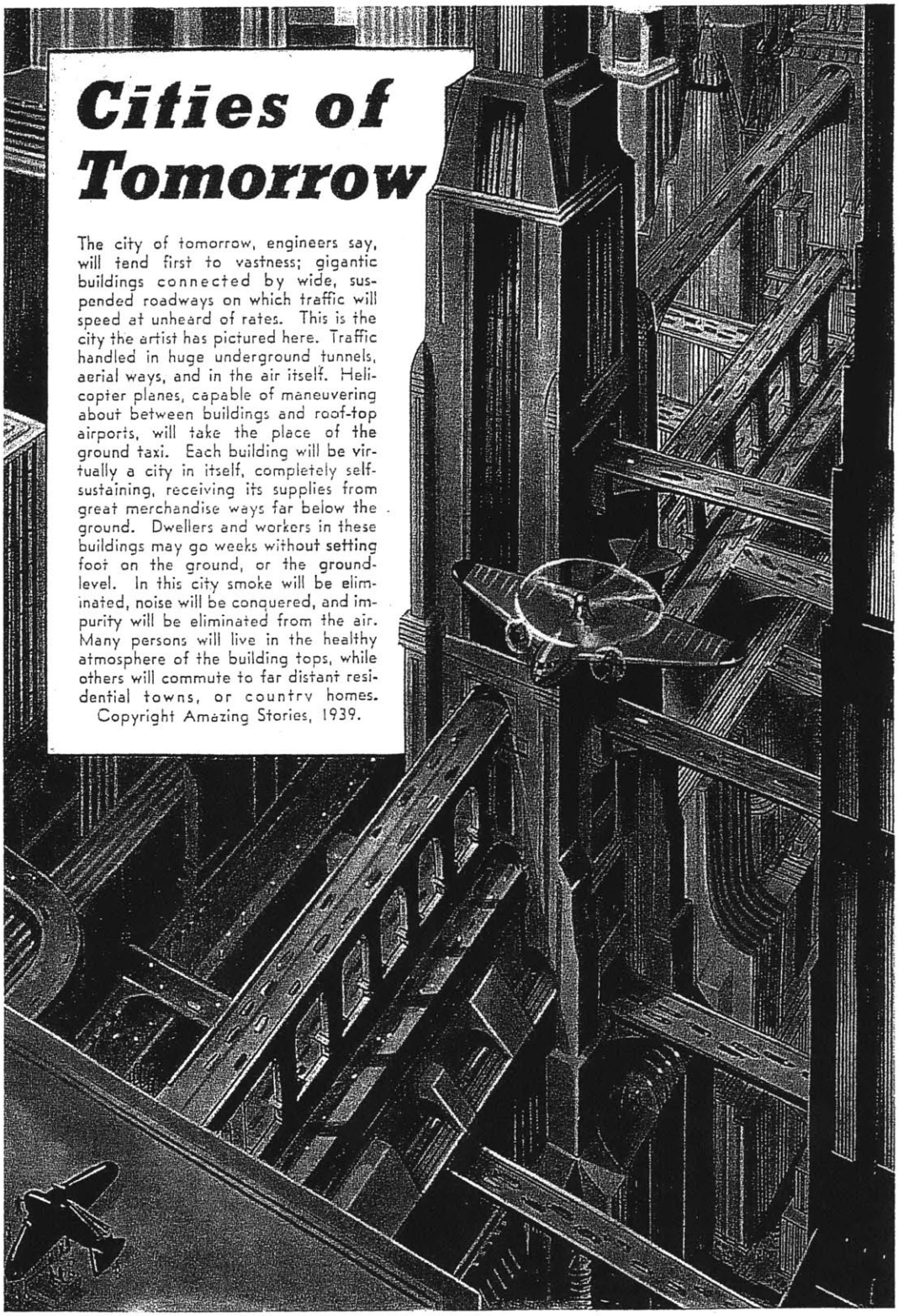


Fig. 1: "Cities of Tomorrow," *Amazing Stories* (1939).

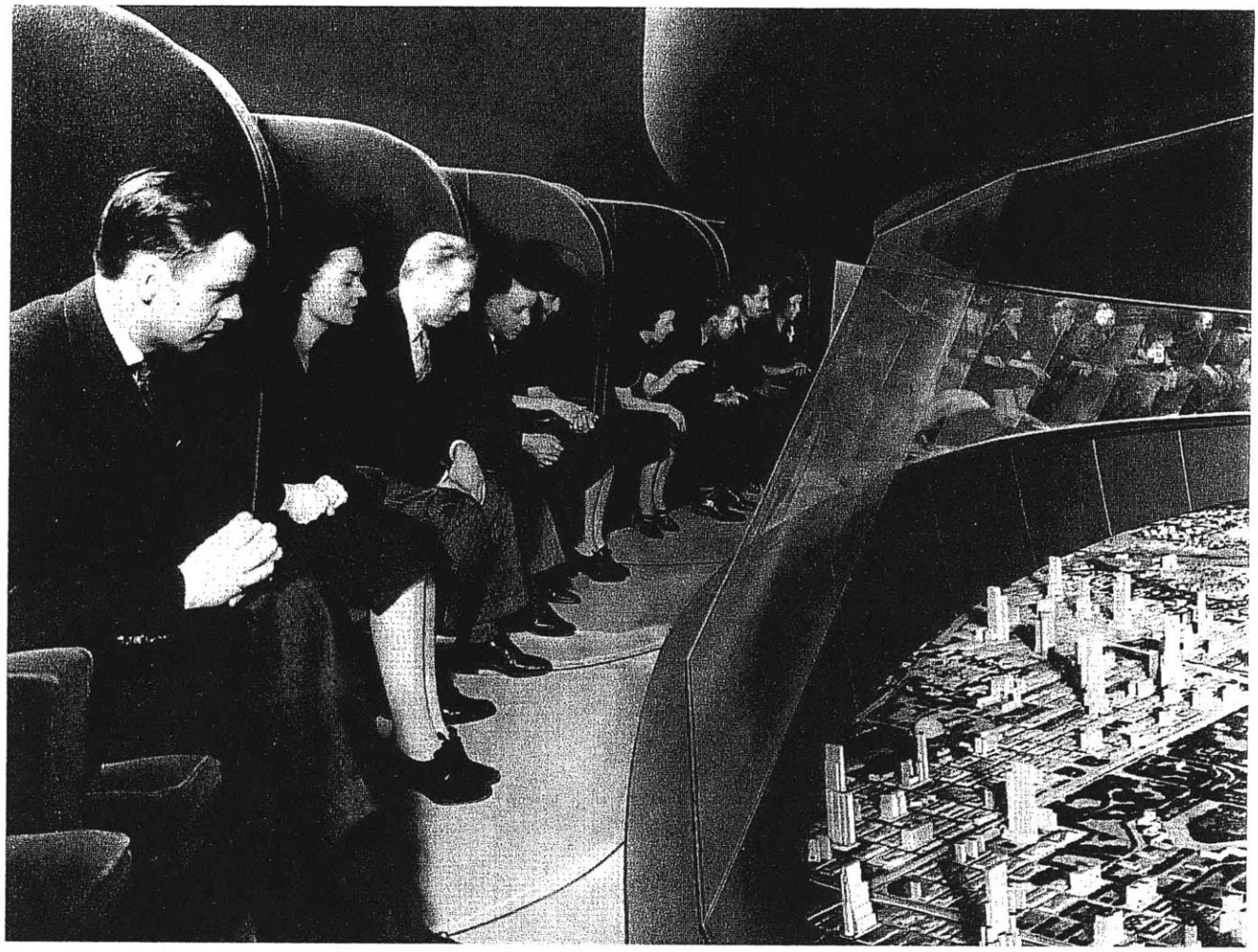
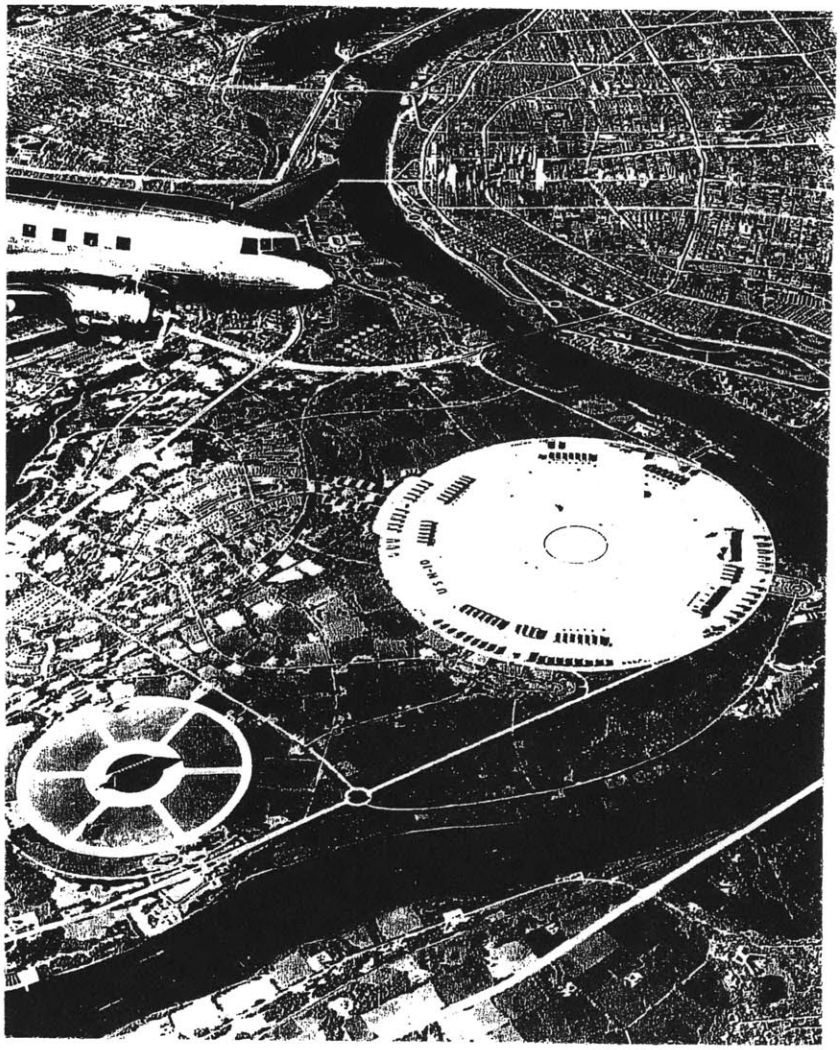


Fig. 2: Spectators and the Futurama model, reprinted in *Rassegna* (60): 55.



Norman Bel Geddes superimposed the cutout of an airplane on a photograph of the Futurama. The collage was later used in the General Motors brochure and other Bel Geddes presentations.

Fig. 3: The airplane over the Futurama model, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.

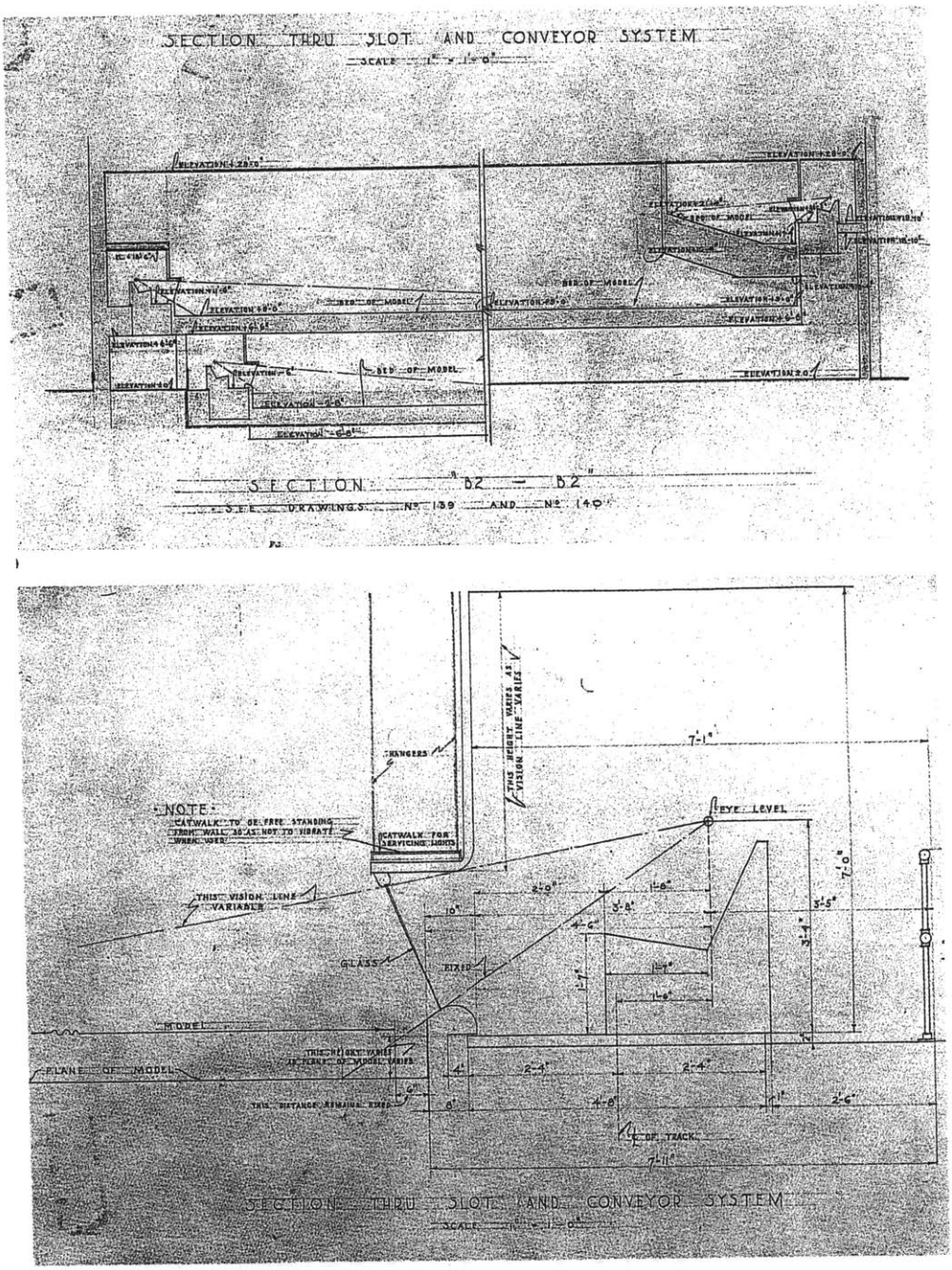


Fig. 4: The conveyor belt cross-section, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.

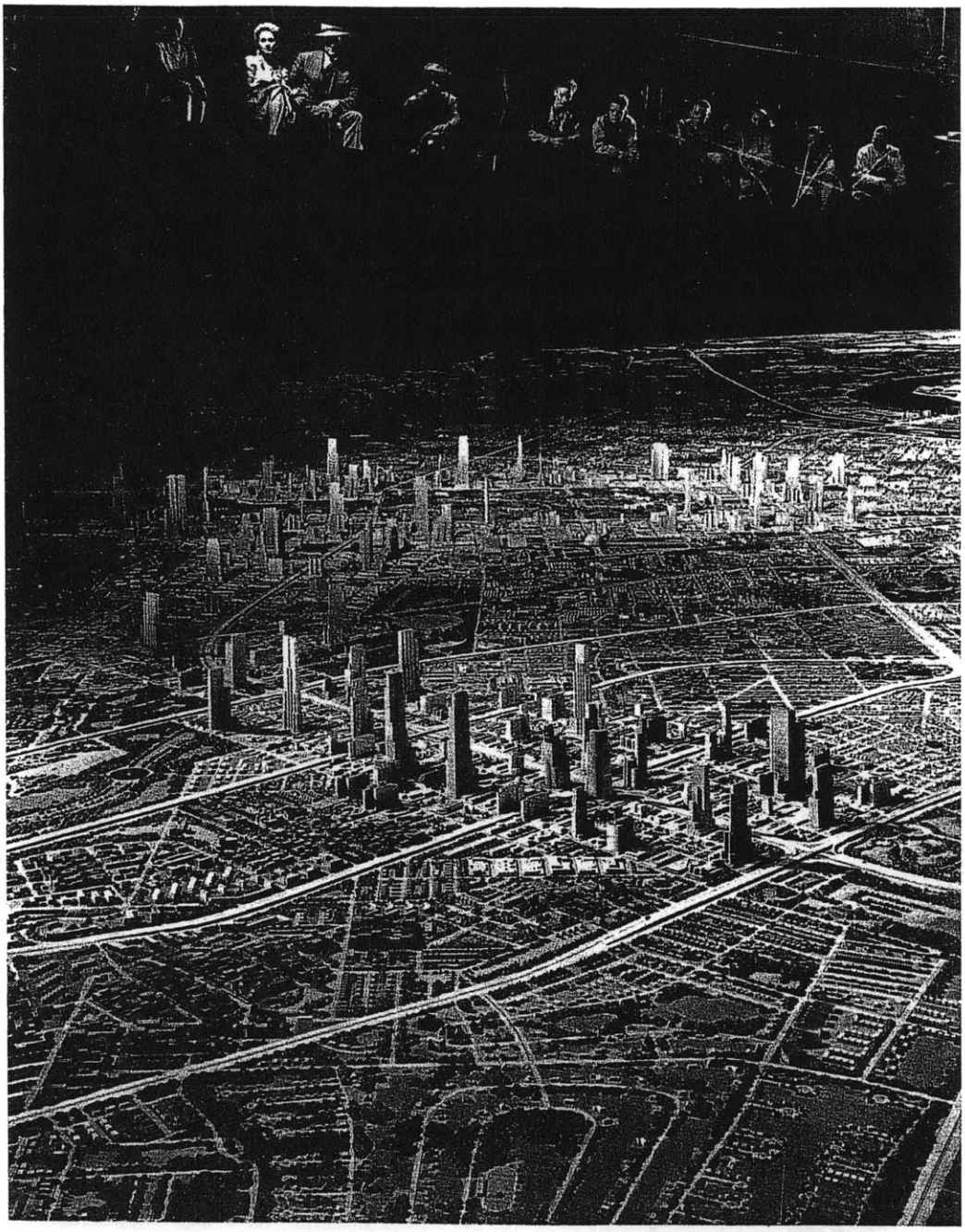


Fig. 5: Spectators over the Futurama model, reprinted in *Rassegna* (60): 61.

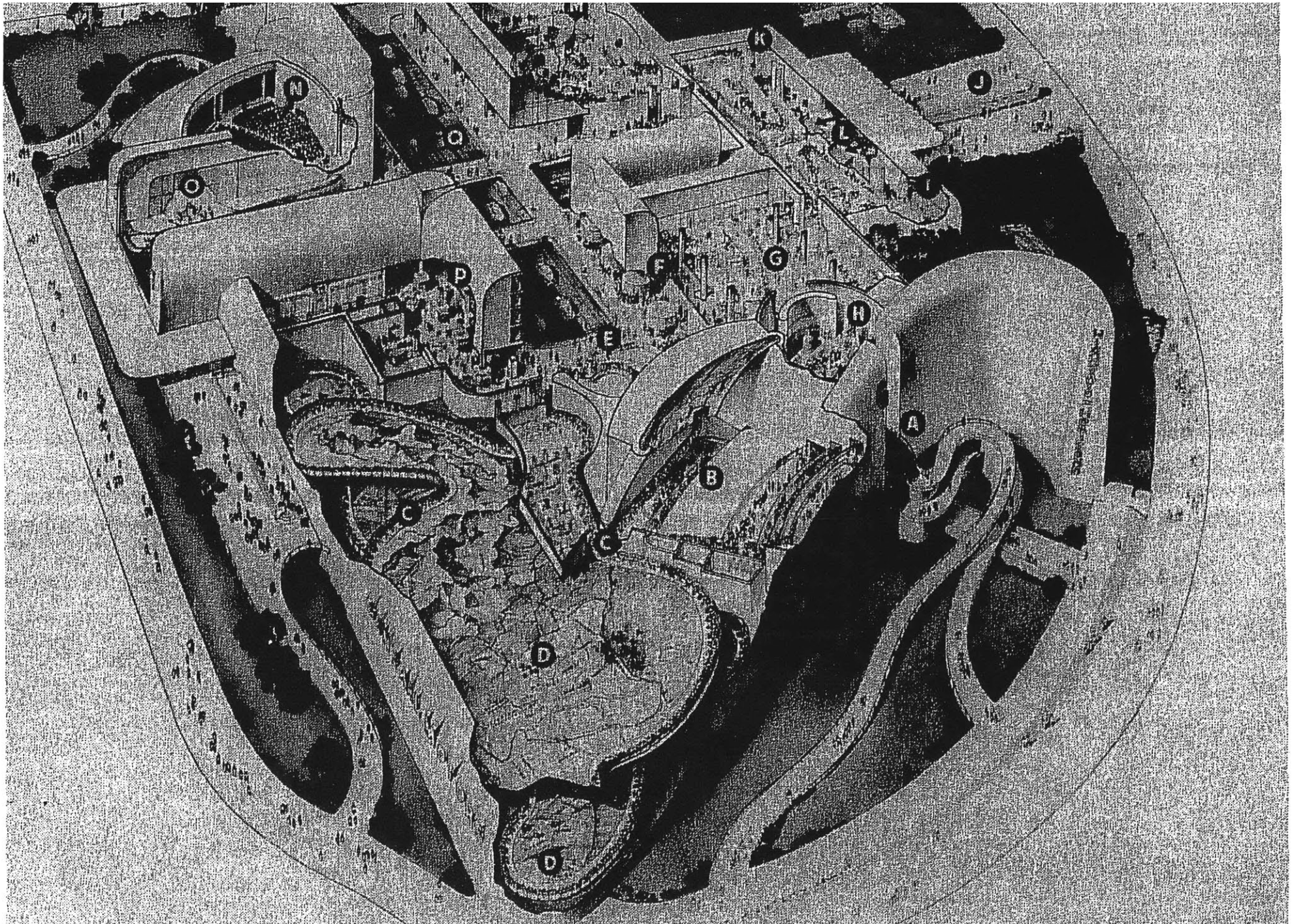


Fig. 6: Axonometric of the General Motors Building, reprinted in Donald J.Bush, *The Streamlined Decade* (New York: George Brazilier, 1975): 160.

Fig. 7: An aerial view of the Futurama, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.

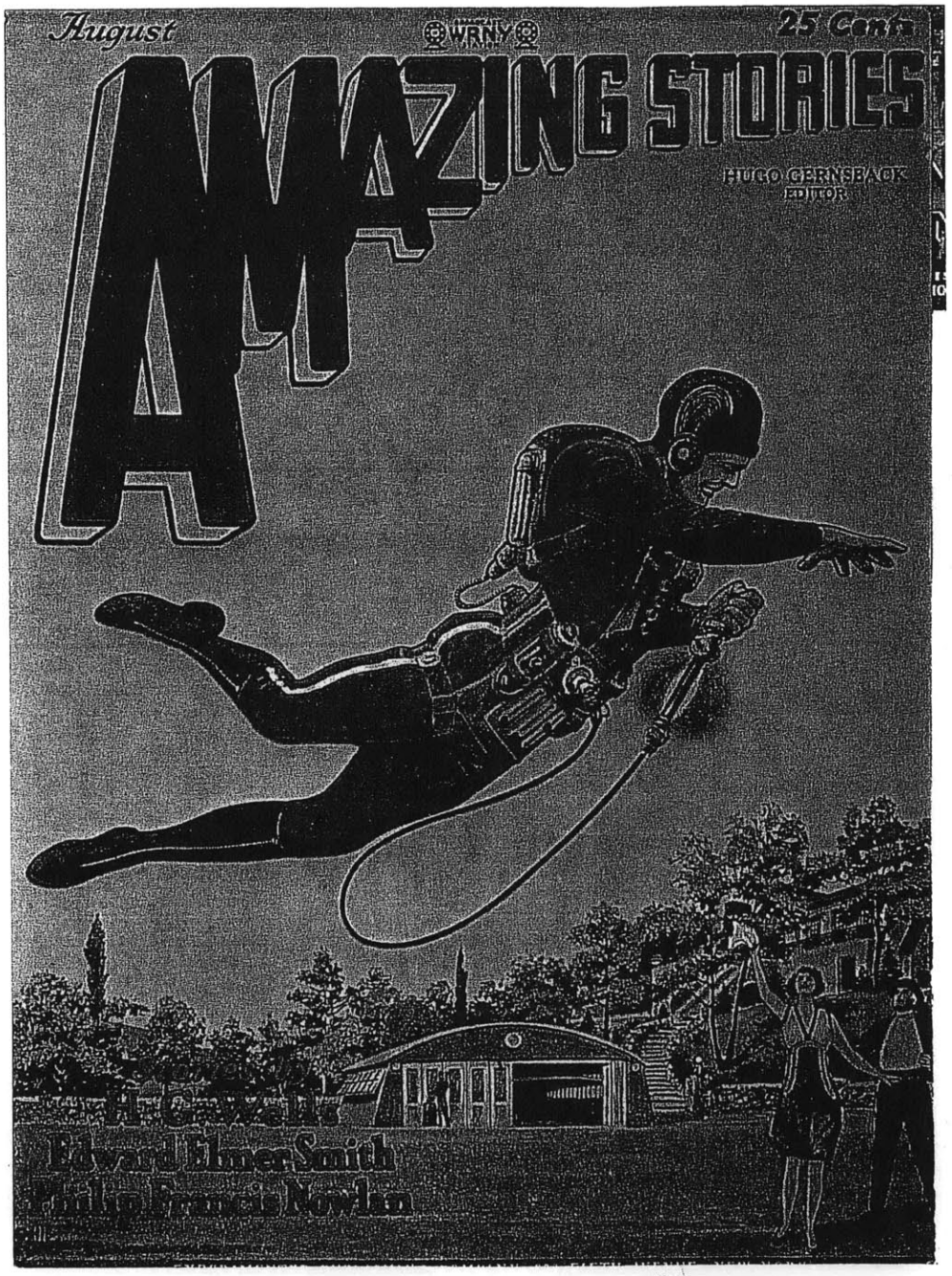


Fig. 8: "The Flying Man" *Amazing Stories*, reprinted in Joseph Corn and Brian Horrigan, *Yesterday's Tomorrow: Past Vision of the American Future* (New York: Summit Books, 1984):9.

The man we look up to!

This we do know: in the world's every hour of crisis there rises a particular man or group of men who are placed there by destiny to defy, to fight and ultimately to defeat a common foe. It is so with us today.

We are challenged nowhere so strongly as in the *air*. And rising to give the answer are thousands upon thousands of our young men — Galahads and Lancelots of holy purpose, their Grail the freedom of mankind, their steeds of steel wheeling in deadly tournament amid the meteoric dust.

No one has ever lived who knew the equal of their courage. And no people have ever had a stouter barricade against a foe. As our aviators fling themselves into that ultimate and decisive battleground — the sky, soaring with them are the hopes of the Democracies of the world.

They are not only fighting; they are "going to school" in a new realm where the scale of man's thinking is large. They see at first hand how small is the world, how easy to fly around it, how petty and futile its fences and boundaries, how inadequate its old yardsticks of distance, and how pinched is yesterday's concept of geography.

Their heroic task accomplished, these airmen will be returning to a new world of their own making, to the world *we* shall live in tomorrow — the world of the air as well as of land and water. The Vultee trainers in which they were cradled and the fighters and bombers in which they utilized their skill will sire planes of Peace. And the universal air will vibrate with their promise of things better far than we have known.

VULTEE

VULTEE AIRCRAFT, INC. • VULTEE FIELD, CALIFORNIA
Builders of Trainers, Dive Bombers and Fighters
Member, Aircraft War Production Council, Inc.

Vultee "VITAL TO VICTORY"

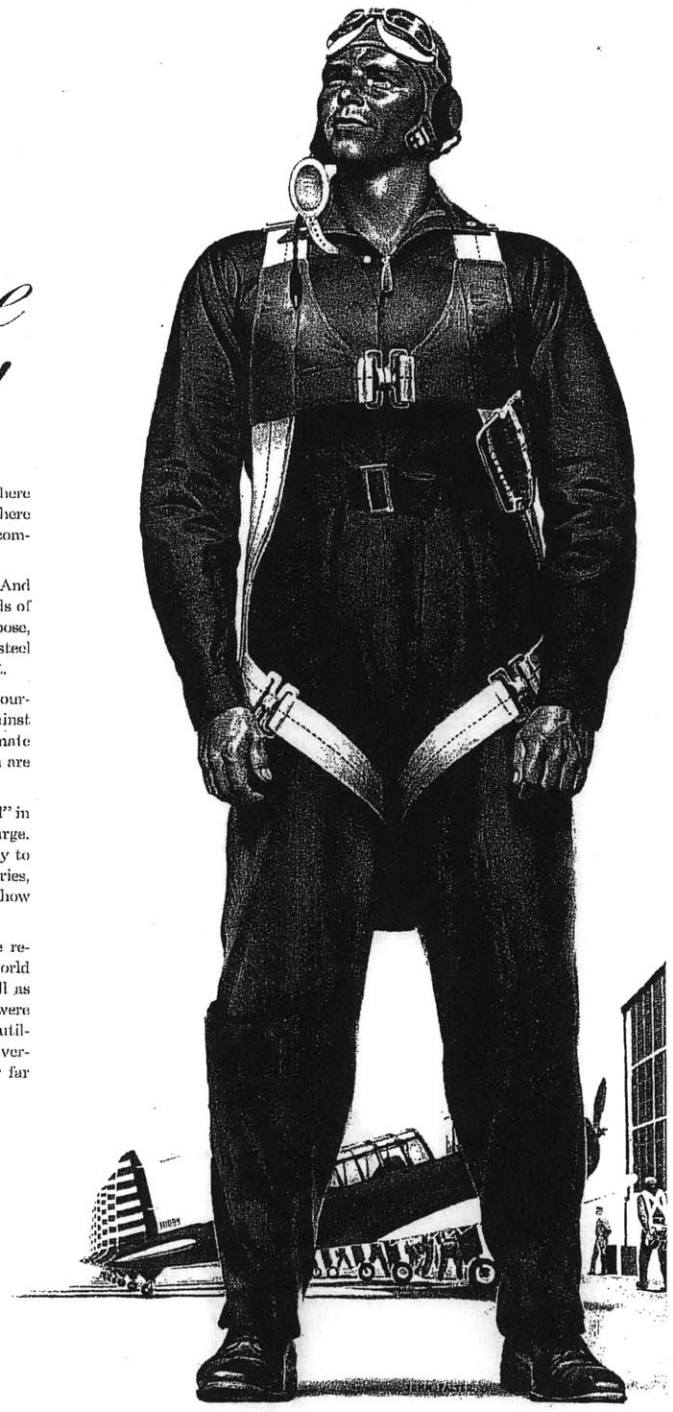


Fig. 9: An advertisement of Vultee Aircraft, Inc., *Fortune* (1942).

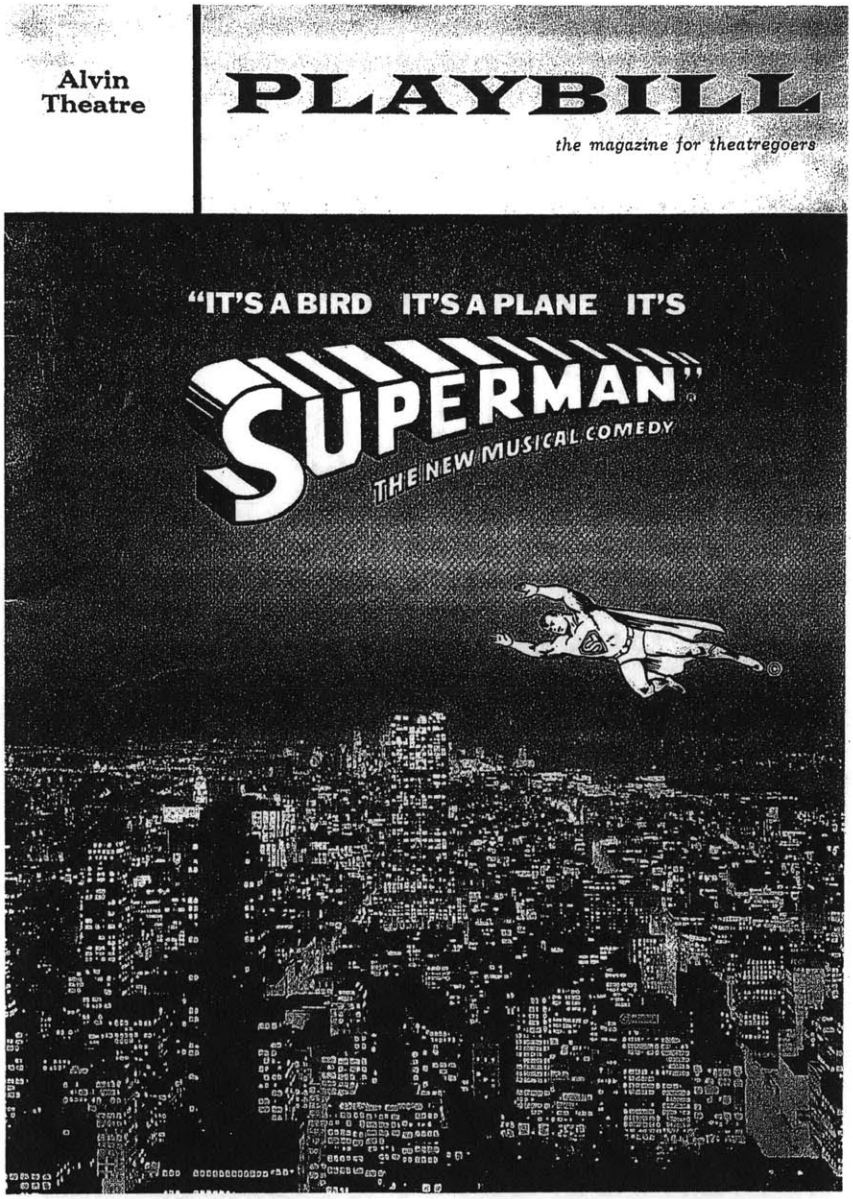
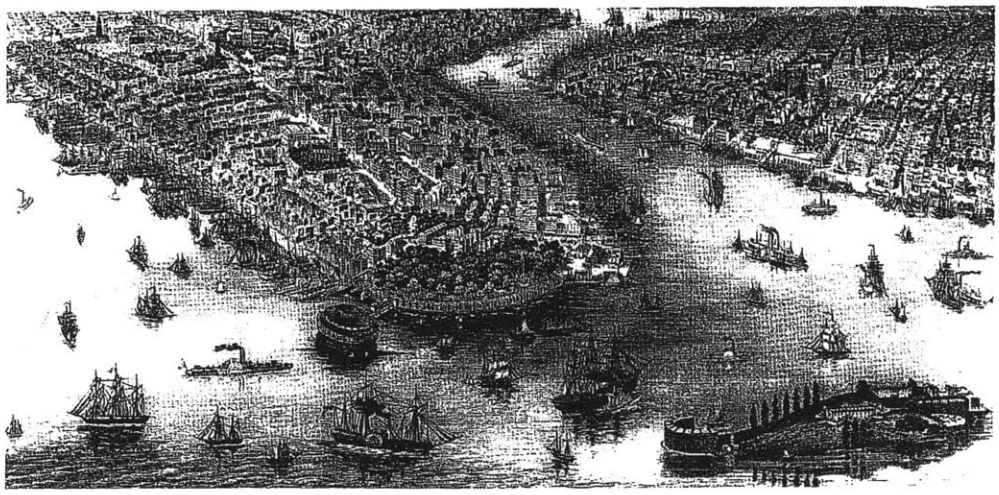


Fig. 10: Superman, reprinted in Les Daniels, *The Complete History: The Life and Times of the Man of Steel* (San Francisco: Chronicle Books, 1998): 111.

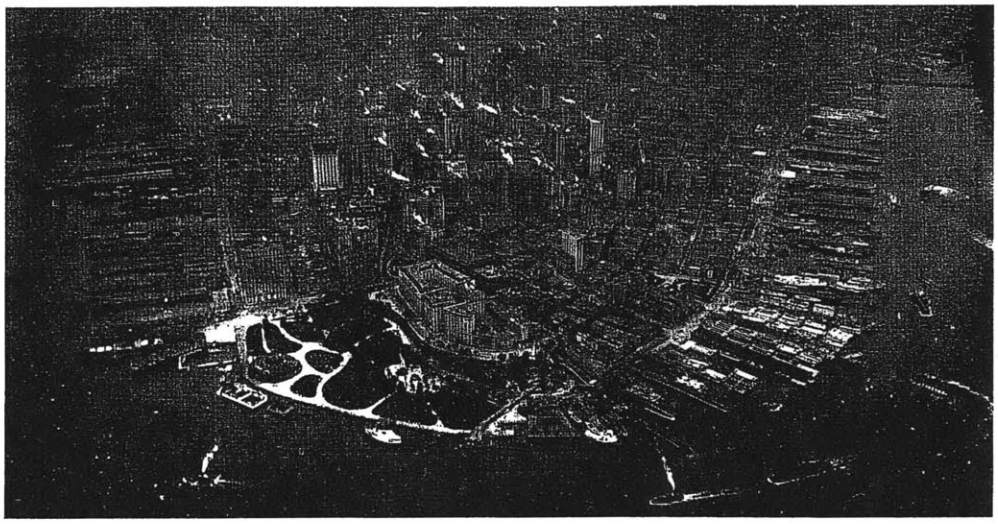
Fig. 11: Manhattan as an aerial spectacle, reprinted in Robert Cameron, *Above New York* (San Francisco: Cameron and Company, 1988).

1855



LOWER MANHATTAN IN 1855 was more than a village, less than a metropolis. The spire of Trinity Church, then just nine years old, is visible in the lower center of this drawing; City Hall, built in 1811, is in the upper center. When City Hall was built, its rear was covered in inexpensive brownstone rather than lavish marble, for it was never expected that the city would move far enough north for City Hall's backside to be frequently seen.

1906



LOWER MANHATTAN IN 1906, was beginning to take on its classic, Mont St. Michel-like profile. The greatest of its skyscrapers would not be constructed for several more years, but the center of the neighborhood was firmly established as the city's dense, high-rise business district, surrounded by the piers that brought the life of an active harbor to within a block or two of bankers' desks. This photograph was taken by J. H. Hare and is reputed to be the first aerial ever made of New York City.

1922

LOWER MANHATTAN BY 1922, was denser still. It had acquired the Woolworth Building by Cass Gilbert at the upper right, the Gothic skyscraper finished in 1913 that was then the world's tallest; it lost that title to the Chrysler Building in 1930, but it remains among the most beautiful tall buildings ever constructed. Gilbert also designed the arch-topped tower at the far left.

LOWER MANHATTAN *(opposite)* today shows how totally the scale has been transformed – where there was once a mix of small and medium-sized buildings, now all the towers of lower Manhattan seem gargantuan, and their boxy forms go all the way to the water's edge, crowding out the small-scale buildings that had served as a welcome counterpoint to the towers of an earlier generation. At the left are the biggest boxes of all, the twin towers of the World Trade Center, that are Manhattan's tallest buildings; to their left are the far livelier towers of the new World Financial Center, whose sculpted tops are an attempt to bring some romance back to the skyscraper form.

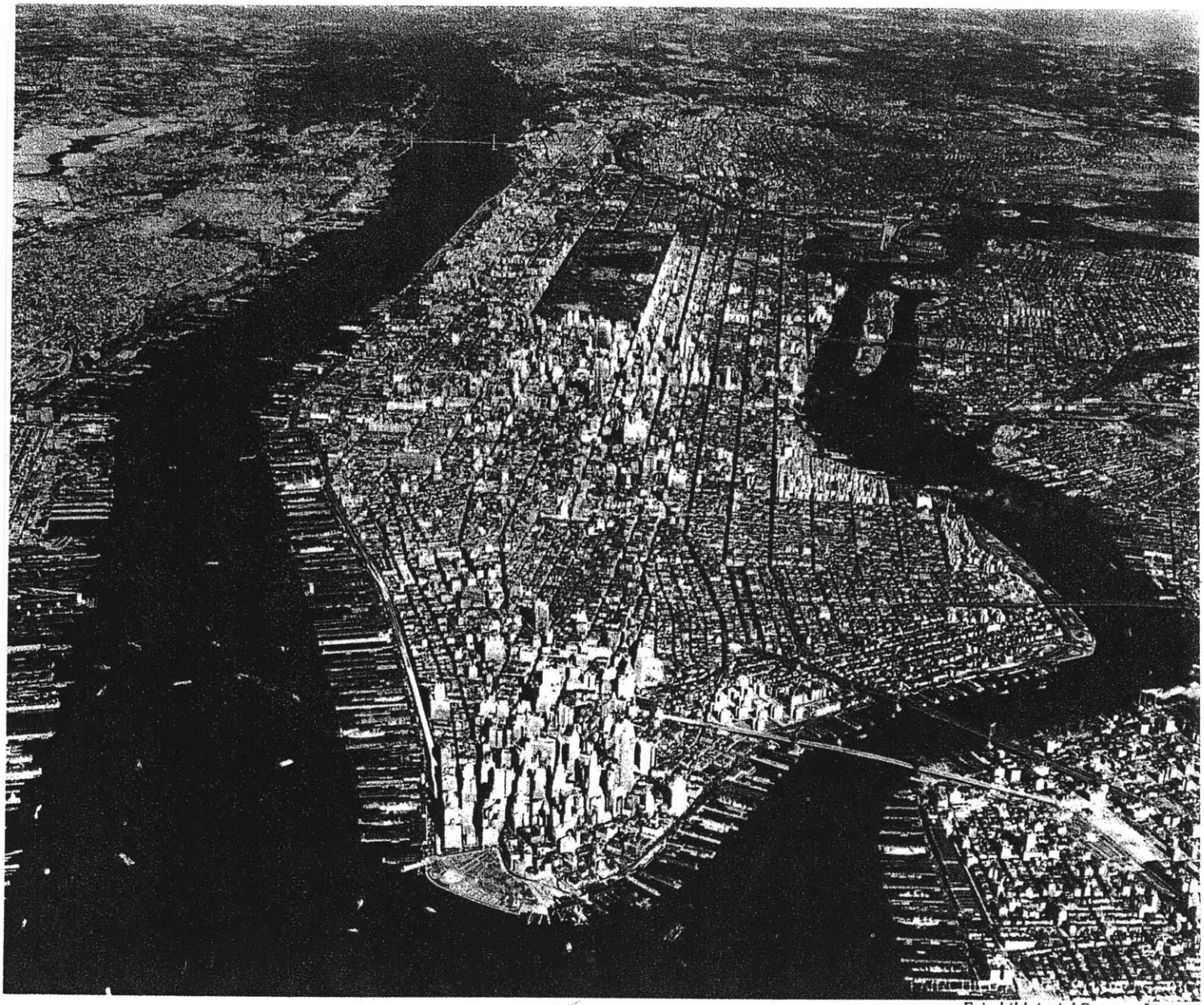


Fig. 12: "From a plane it was possible at last to see," aerial view of Manhattan, reprinted in John A. Kouwenhoven, *The Columbia Historical Portrait of New York: An Essay in Graphic History* (New York: Harper & Row, Publishers, 1972): 506.

© *Wide World Photos*

Fig. 13: Airplane/Manhattan in Harry Guggenheim, *Seven Skies* (New York: G. P. Putnam's Sons, 1930): 36.

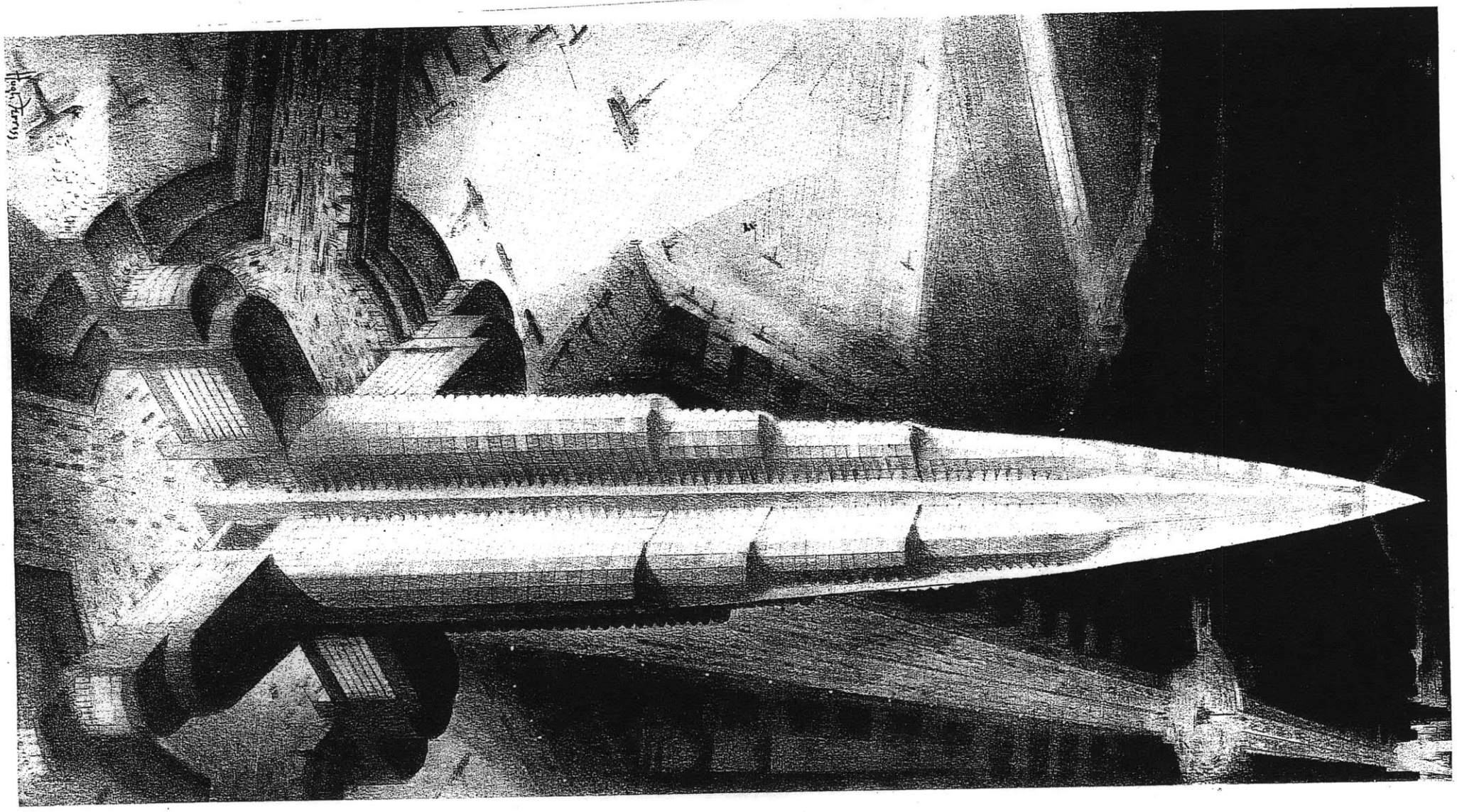


Fig. 14: Hugh Ferriss, *Metropolis*, reprinted in Jean Ferriss Leich, *Architectural Visions: The Drawings of Hugh Ferriss* (New York: Whitney Library of Design, 1980).

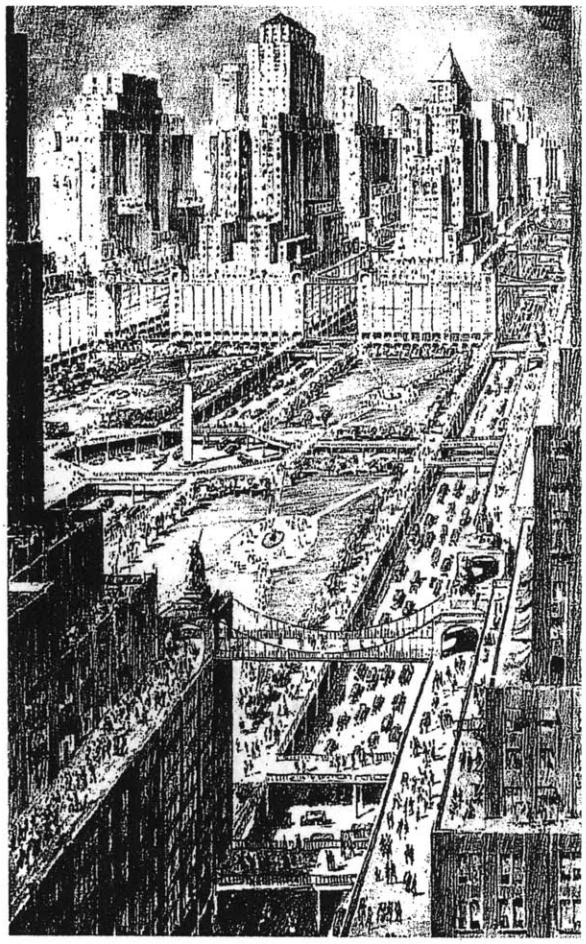


Fig. 15: Harvey Wiley Corbett, New York traffic, reprinted in Rem Koolhaas, *Delirious New York, A Retroactive Manifesto for Manhattan* (New York: The Monacelli Press, 1994): 124.

THE COSMOPOLIS OF THE FUTURE. A weird thought of the frenzied heart of the world in later times, incessantly crowding the possibilities of aerial and inter-terrestrial construction, when the wonders of 1908—the Singer Bldg., 612 ft. high, with offices on 41st floor, and the Metropolitan Life tower, 658 ft. high—will be far outdone, and the 1,000-ft. structure realized; now nearly a million people do business here each day; by 1930 it is estimated the number will be doubled, necessitating tiers of sidewalks, with elevated lines and new creations to supplement subway and surface cars, with bridges between the structural heights. Airships, too, may suggest us wish all the world [illegible]

Fig. 16: "King's Dream of New York," reprinted in Moses King, ed., *King's Views of New York 1886-1915* (New York: Arno, 1974): 1.

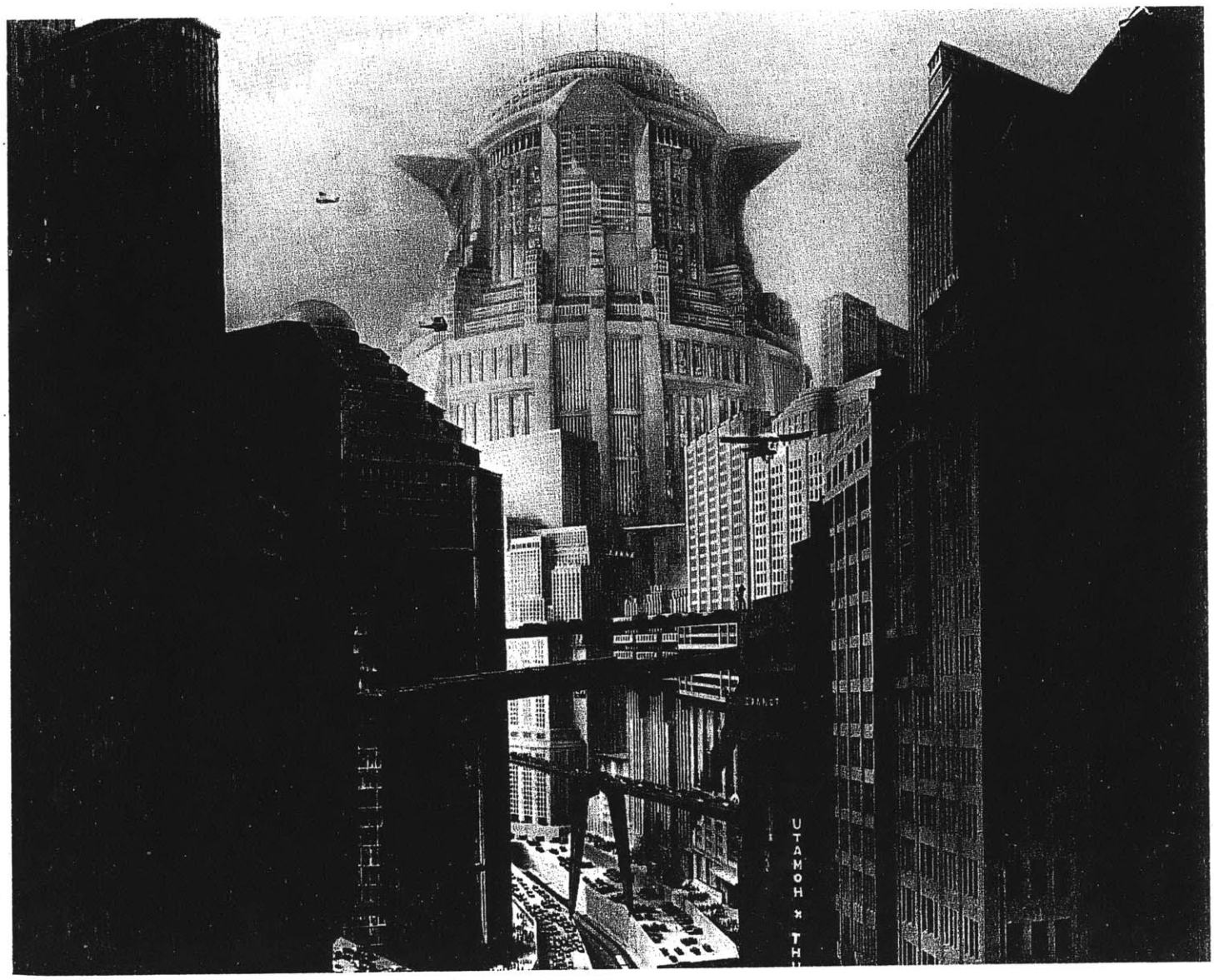


Fig. 17: Fritz Lang, *Metropolis* (1926), reprinted in Les Daniels, *The Complete History: The Life and Times of the Man of Steel* (San Francisco: Chronicle Books, 1998): 27.

Captain A.W. Stevens shooting a film for the US Air Force in 1929.

Camera mounted on a machine-gun emplacement, interfering with the aircraft's defences. The gun-grip is underneath the camera.

Fig. 18: The aerial camera as a weapon, reprinted in Paul Virilio, *War and Cinema: The Logistics of Perception*, trans., Patrick Camiller (London and New York: Verso, 1989).

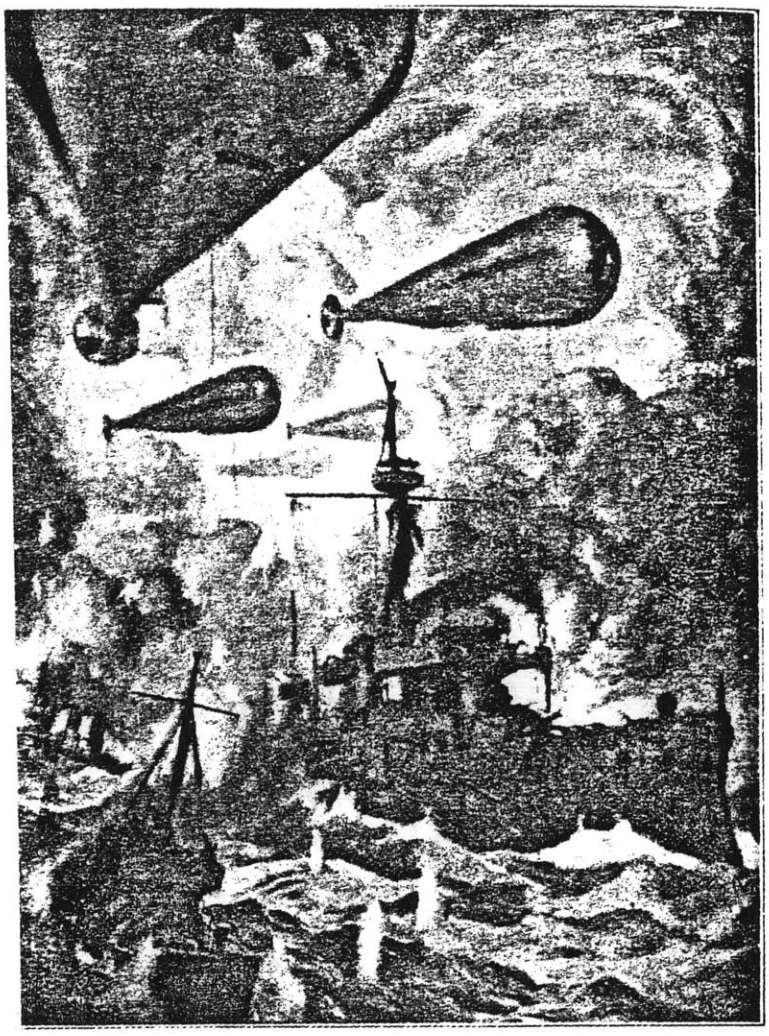


Fig. 19: H. G. Wells, *The War in the Air* (1908), reprinted in Three Science Fiction Novels (New York: Dover Publications, Inc., 1963).

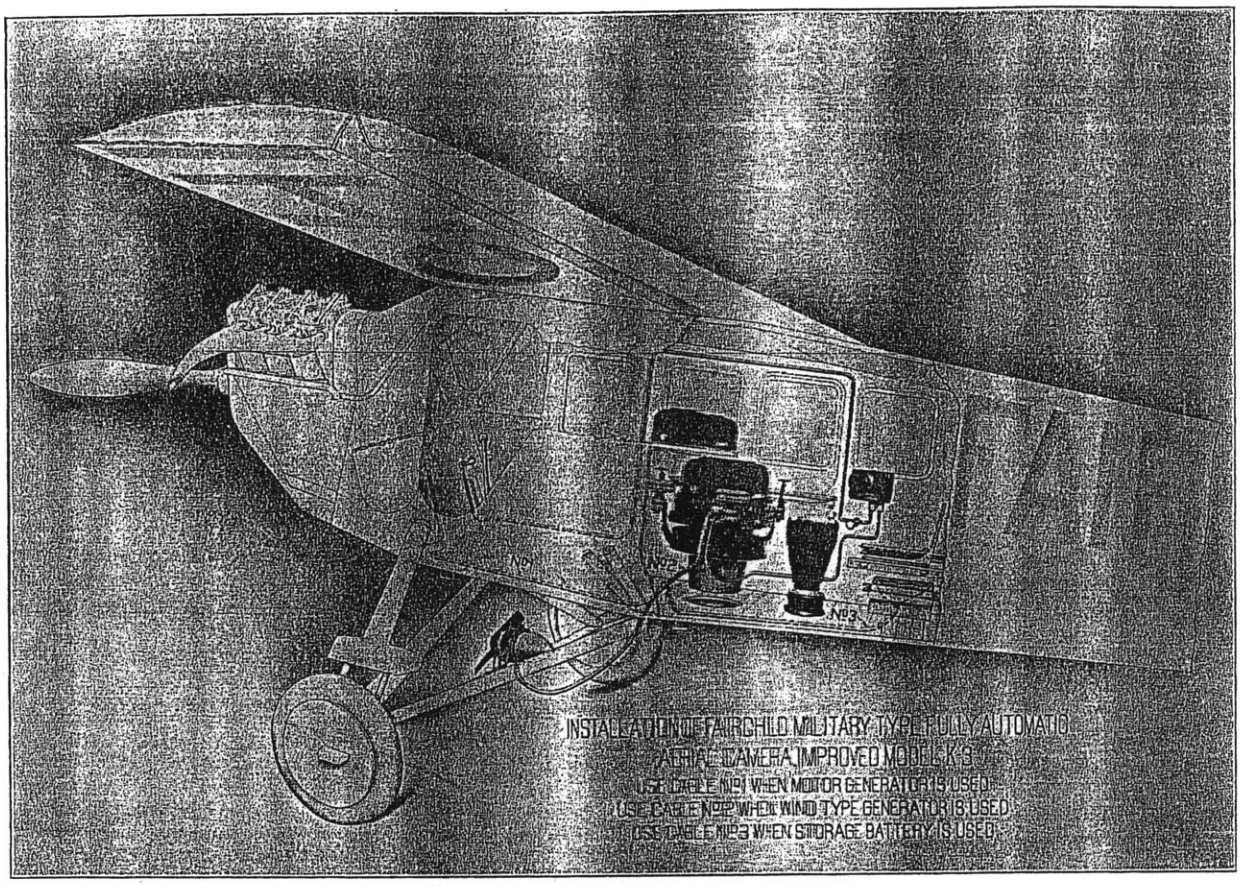


Fig. 20: Fairchild Aerial Camera, reprinted in Fairchild, Sherman, "Aerial Photography, Its Development and Future," *American Academy of Political and Social Science, Aviation*, vol. 131 (May, 1927).

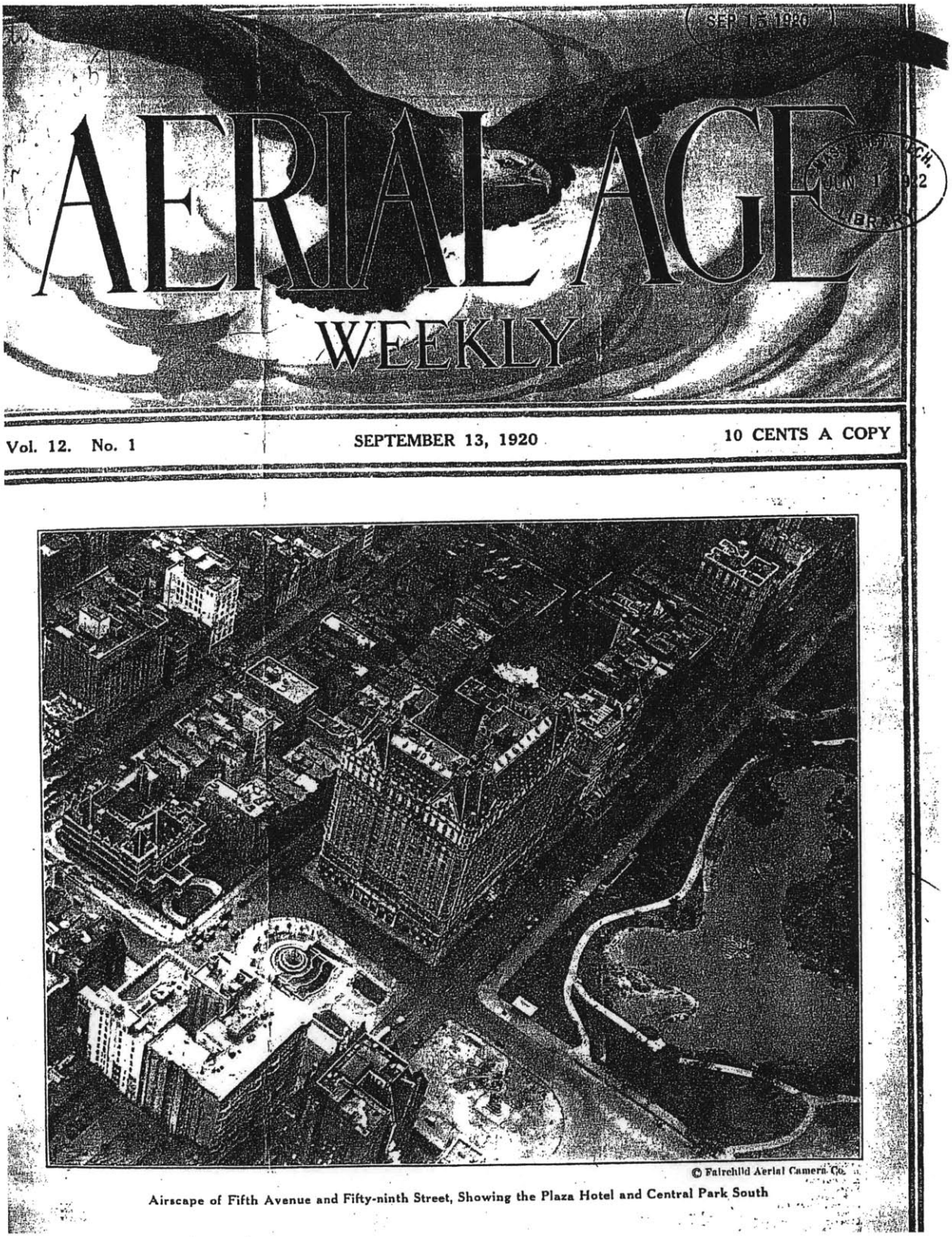
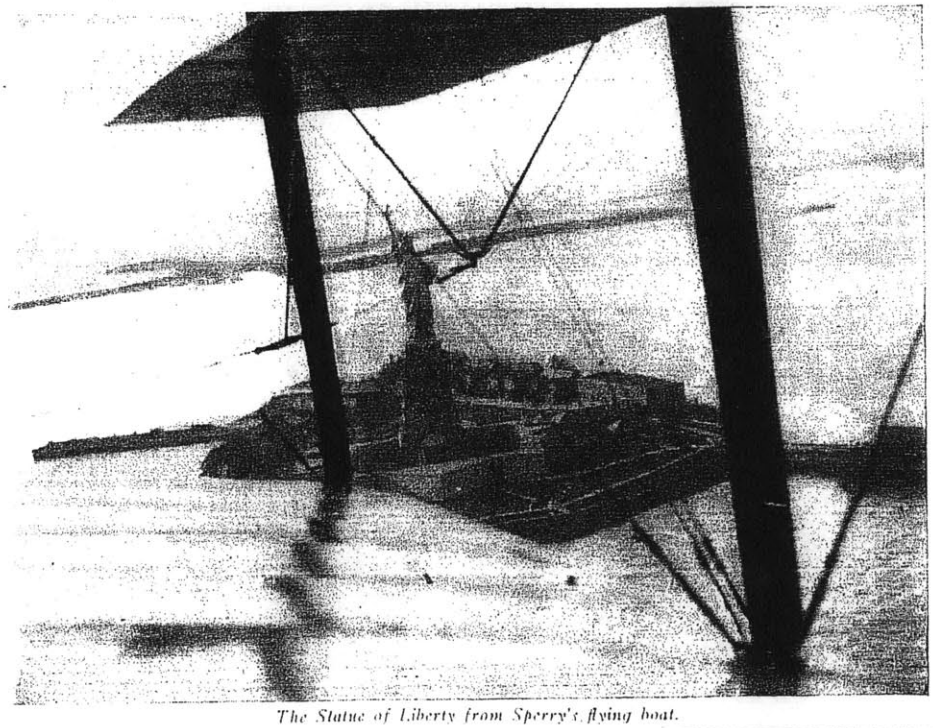


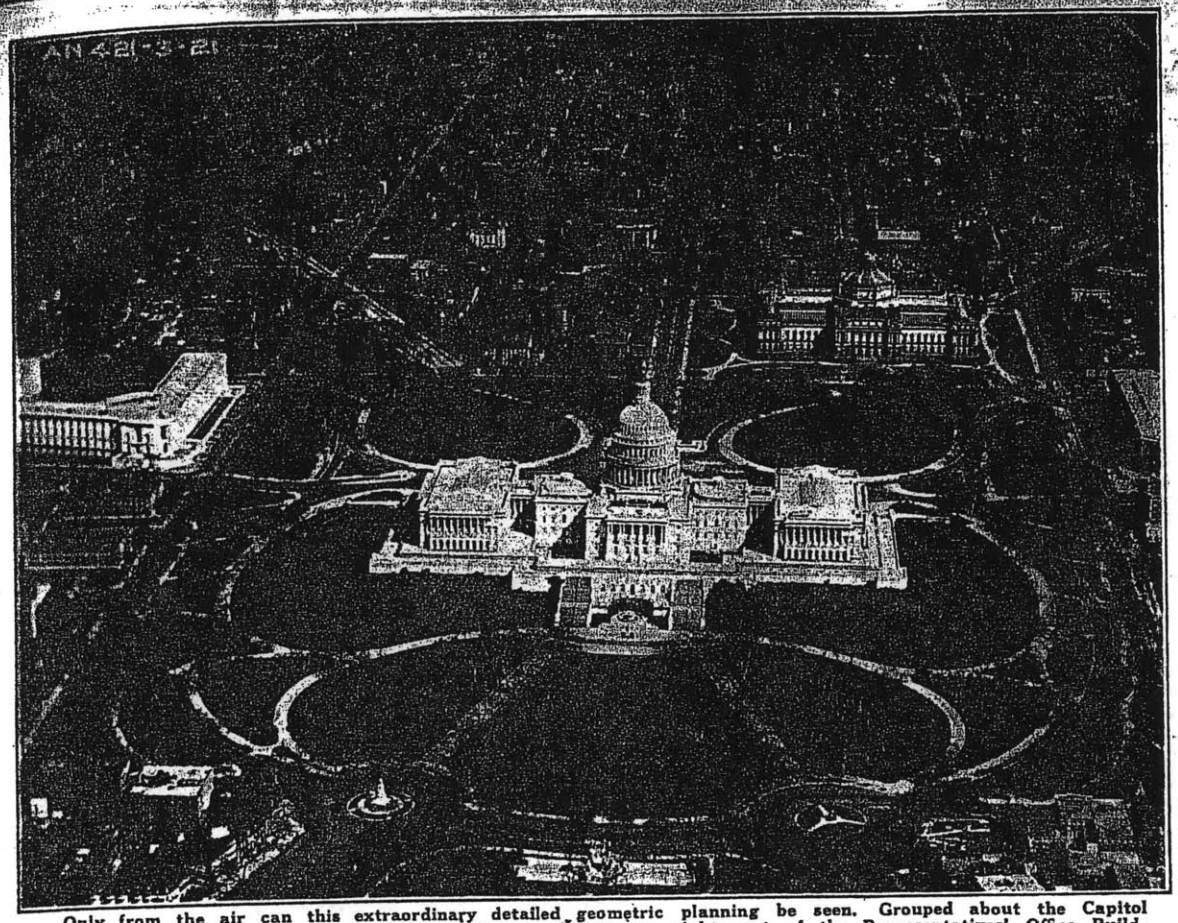
Fig. 21: An "airscape" of Manhattan, *Aerial Age Weekly* (1920).

Brooklyn and Manhattan bridges caught in the Universal Film Co. movies from Lawrence B. Sperry's flying boat.



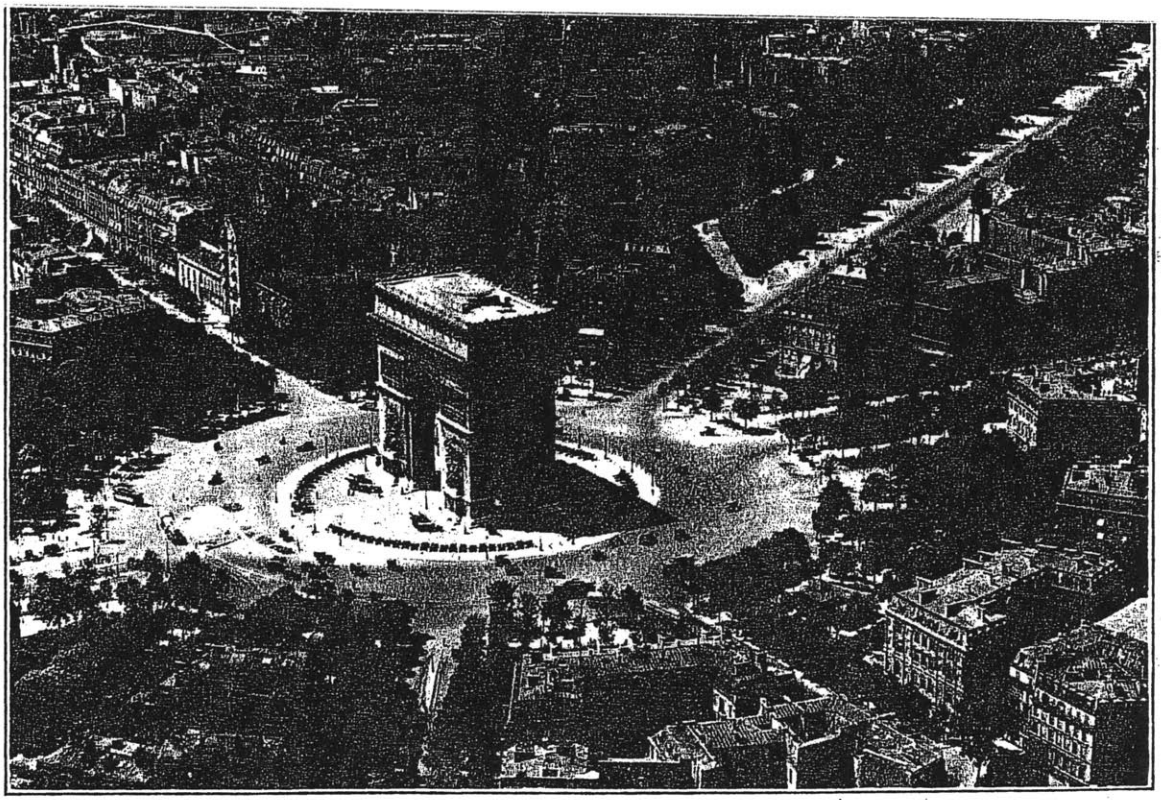
The Statue of Liberty from Sperry's flying boat.

Fig. 22: Brooklyn and Manhattan Bridges, and the Statue of Liberty in *Flying* (October 1916).



Only from the air can this extraordinary detailed geometric planning be seen. Grouped about the Capitol may be seen in the front the Grant Memorial; on the extreme right part of the Representatives' Office Building; the Congressional Library, and at the left the Senate Office Building. The Capitol itself is one of the finest examples of balanced architectural planning in the world.

Fig. 23: The US Capitol, *Aerial Age* (1923): 5.



© Official U. S. Army Air Service
The historic "Hub", the Arc de Triomphe, Paris, centered at the Etoile, with the grand avenues radiating to distant vistas. Only from an airplane can this beautiful aspect of the Arc be realized.

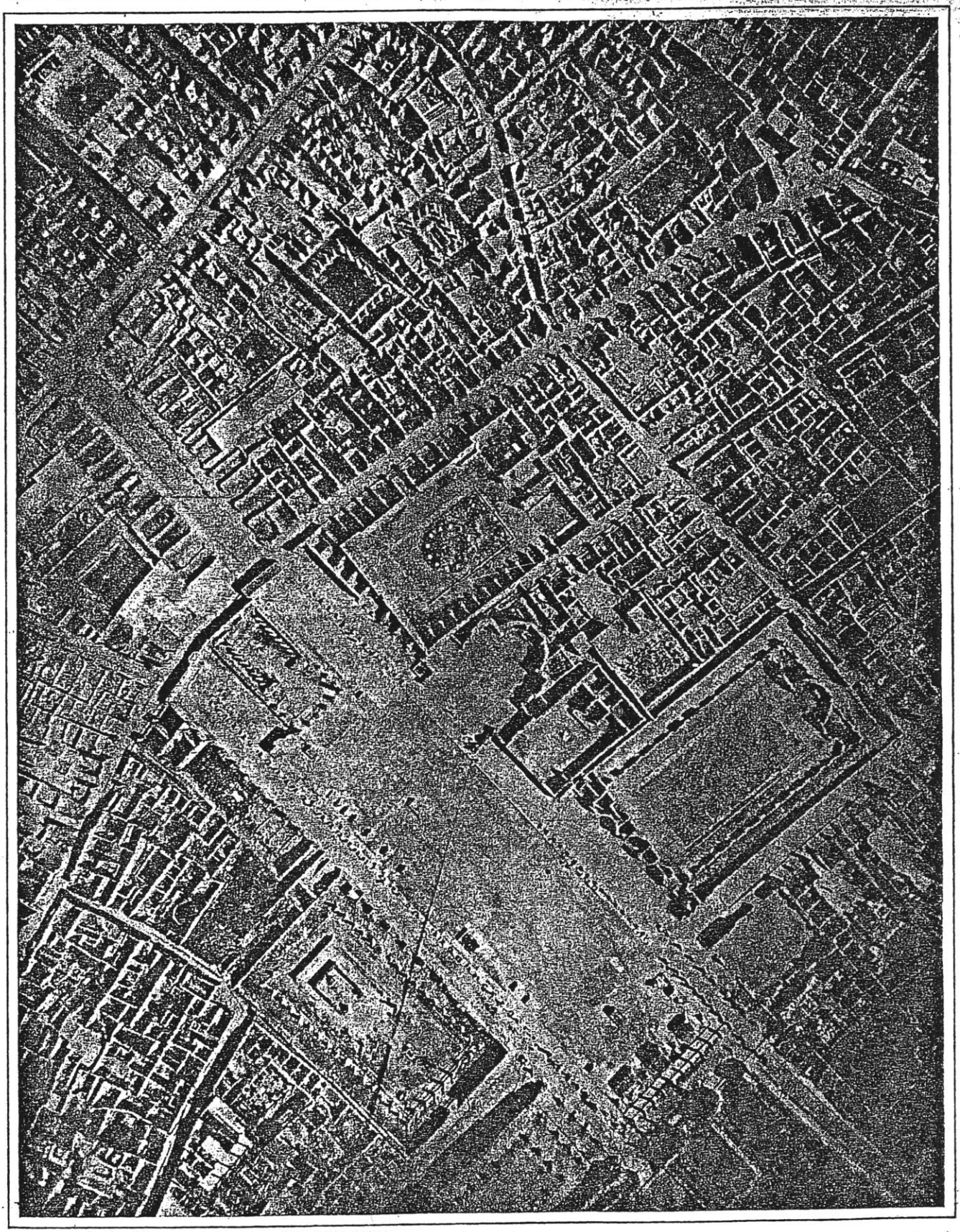
Fig. 24: *Arc de Triomphe, Aerial Age* (1923).

Texture. The resulting outward surface we may call texture. organic texture.

4. Texture of the skin of a man, allegedly 130 years old, in Minnesota.

The photograph of the old man is essentially a time-compressing view of the alterations in the epidermis: an airplane view of time.

Fig. 25: "The old man," László Moholy-Nagy, *The New Vision* (New York: George Wittenborn, Inc., 1947 [1928]): 26.



Photograph by Paul Thompson—Courtesy of the Independent.

A PHOTOGRAPH THAT SPANS TWENTY CENTURIES—POMPEII FROM AN AIRSHIP.

Fig. 26: Pompeii, *Flying* (1914).

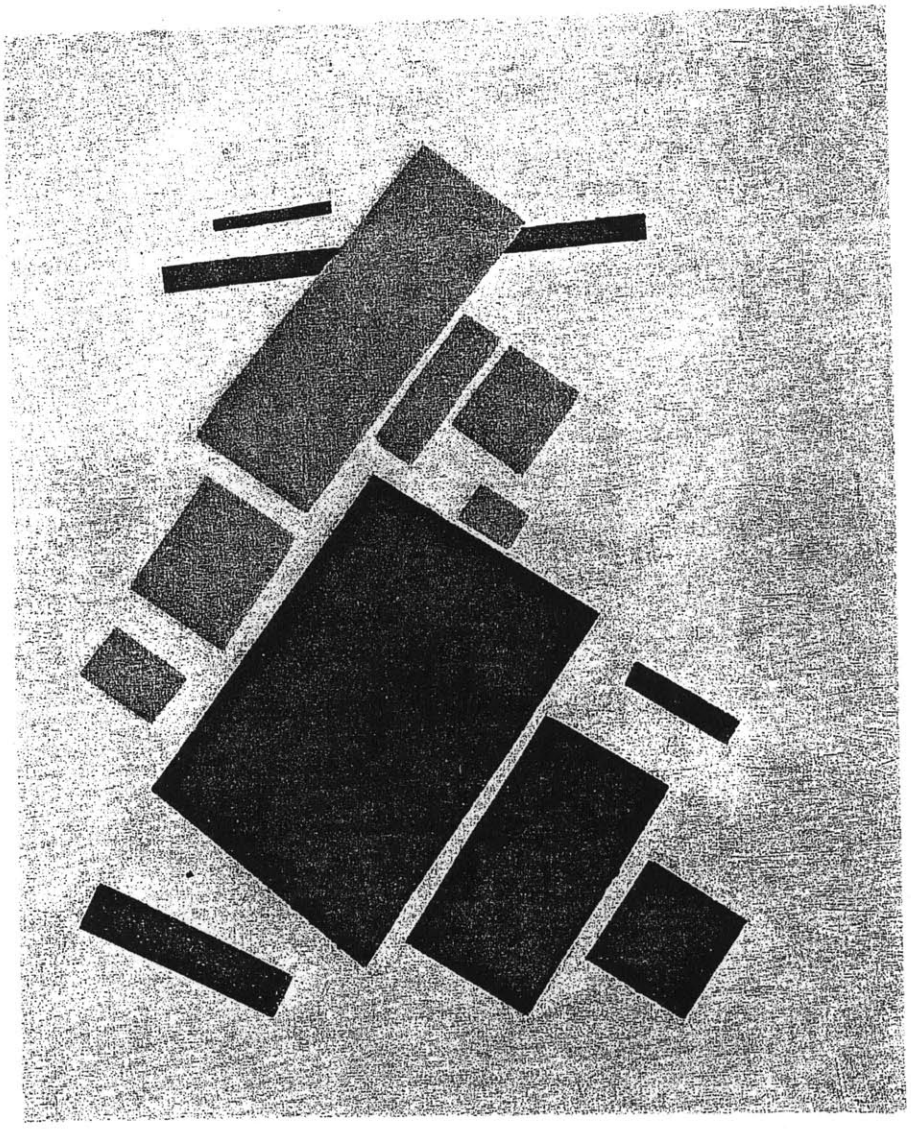


Fig. 27: *Airplane Flying*, 1915, Kasimir Malevich, reprinted in Kazimir Malevich 1878-1935 (The Armand Hammer Museum of Art and Cultural Center, 1990): 73..

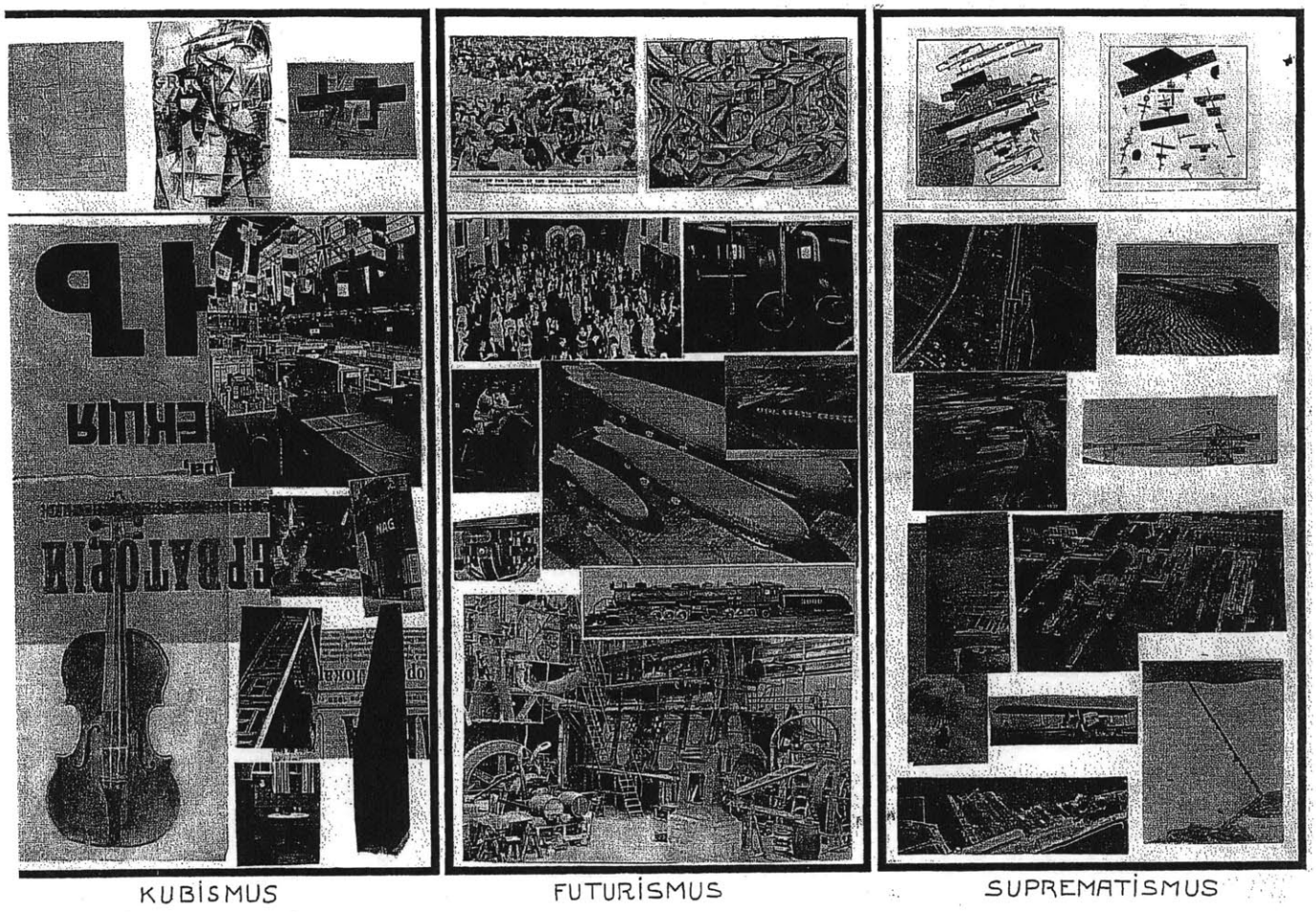
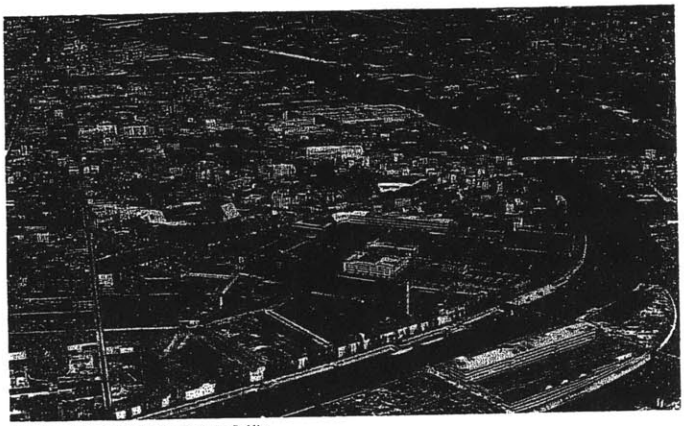


Fig. 28: Collage, Kasimir Malevich, reprinted John Elderfield, Peter Reed, Mary Chan, and Maria Del Carmen Gonzalez, eds., *Modern*starts, *People, Places, Things* (New York: The Museum of New York, 2000): 256.

FIG. 16.—Spain, Toledo. Church and castle are the rival symbols of the Middle Ages. Here in Toledo, as in many other towns, both dominate the skyline. The houses rise as a compact mass in terraces to the highest plateau. They are "introvert," their rooms arranged around an inner courtyard; only a few windows and doors open onto the streets. The natural features of the site compress the town to a compact unit which, just like the "introvert" houses, forces the whole place into a determined seclusion that increases the personal contact of the inhabitants.



Courtesy of the Ministère des Travaux Publics

FIG. 17.—France, Paris, Billancourt. The industrial district is situated on an island in the Seine. It forms an inseparable unit with the residential quarters. Factory chimneys are the characteristic feature of the skyline. Everywhere they are the symbols of modern society and of its demon, industry. They are the expression of the one-sided preoccupation with work, an attitude which has made the existence of modern man lopsided, destroyed the unity of his personal and functional life, undermined his intimate and personal relations, and produced the dangerous conditions in which a machine-centered managerial revolution can develop.

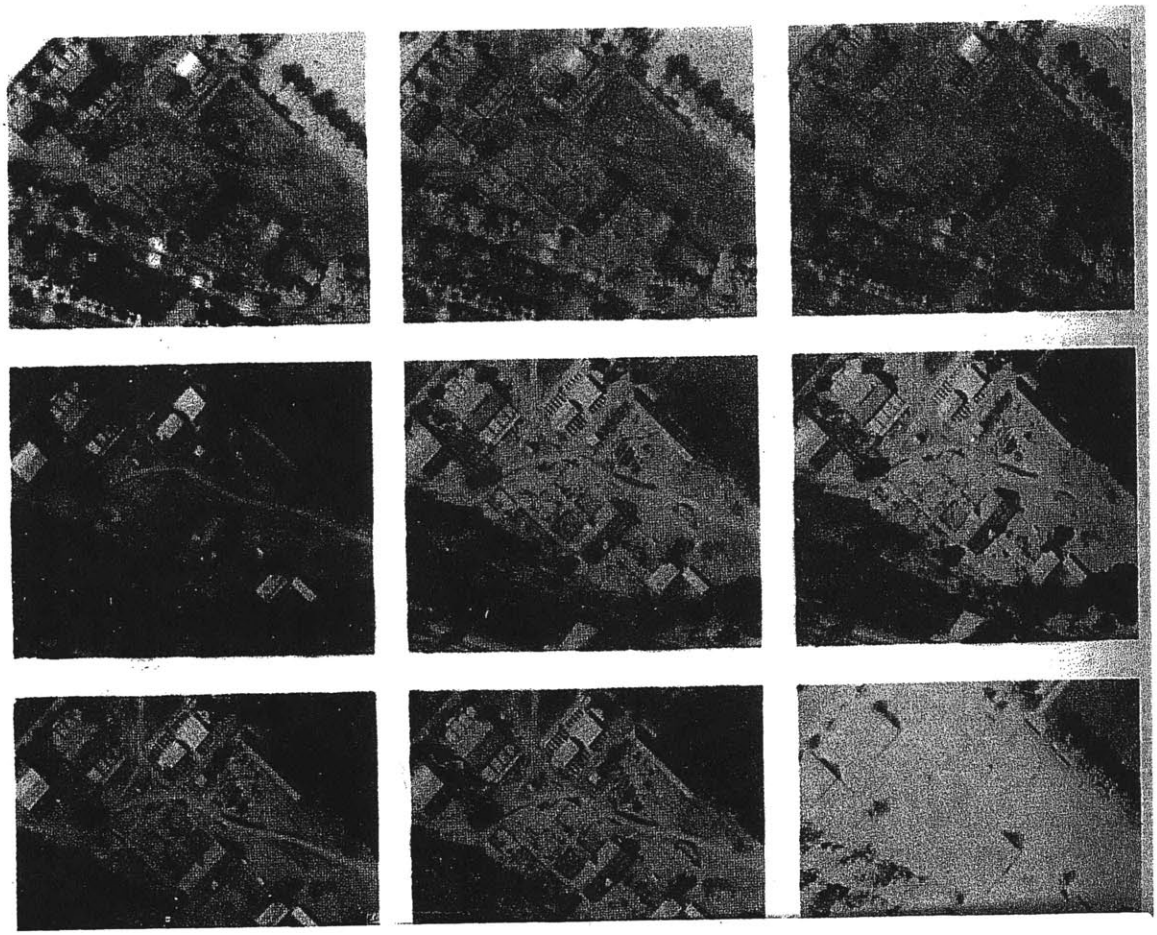


Fig. 29: Typical aerial photographs, reprinted in E. A. Gutkind, "Our World from the Air: Conflict and Adaptation," *Man's Role in Changing the Face of the Earth*, ed., W. L. Thomas (Chicago: Chicago University Press, 1956): 17.

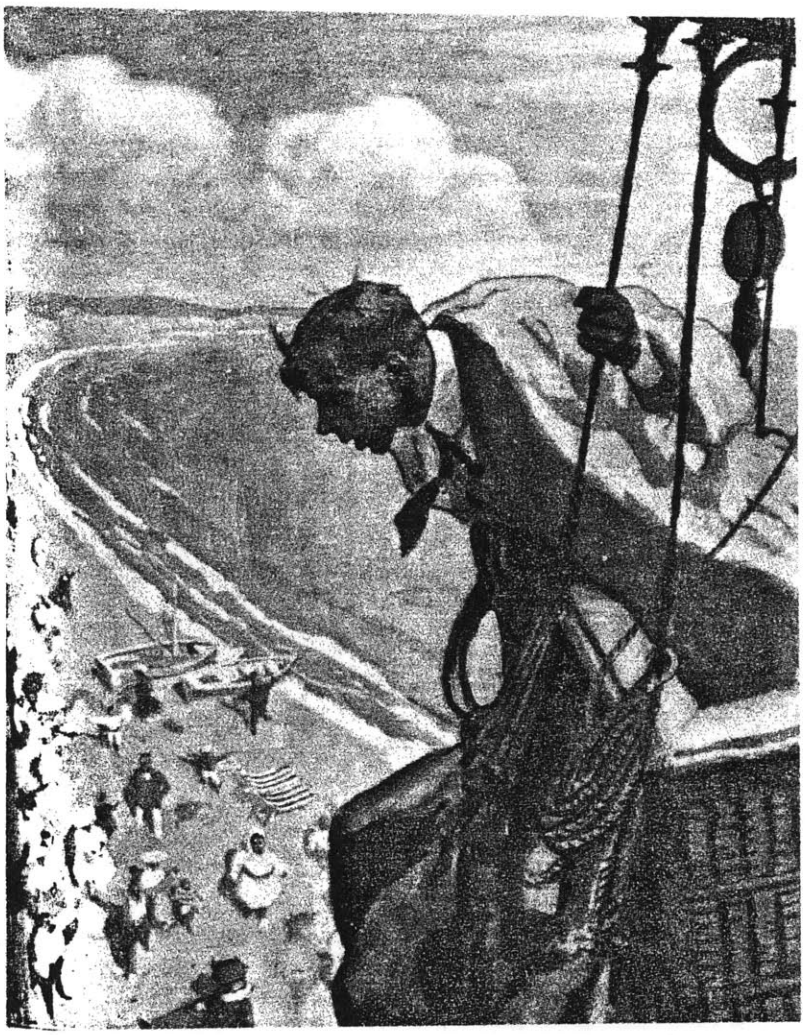


Fig. 30: H. G. Wells, *The War in Air* (1908), reprinted in *Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963): 46.

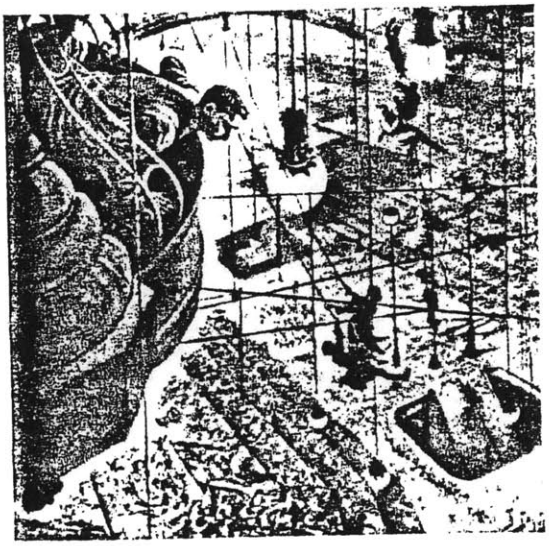


Illustration for H. G. Wells' novel *When the Sleeper Wakes* (1899), depicting London of the future laid out far below on endless moving transport belts and with people traveling in mid-air on long suspended cables. [125]

Fig. 31: H. G. Wells, *When the Sleeper Wakes* (1899), Conrads, Ulrich, and Sperlich, Hans G. *The Architecture of Fantasy* (New York: Praeger, 1962): 91.

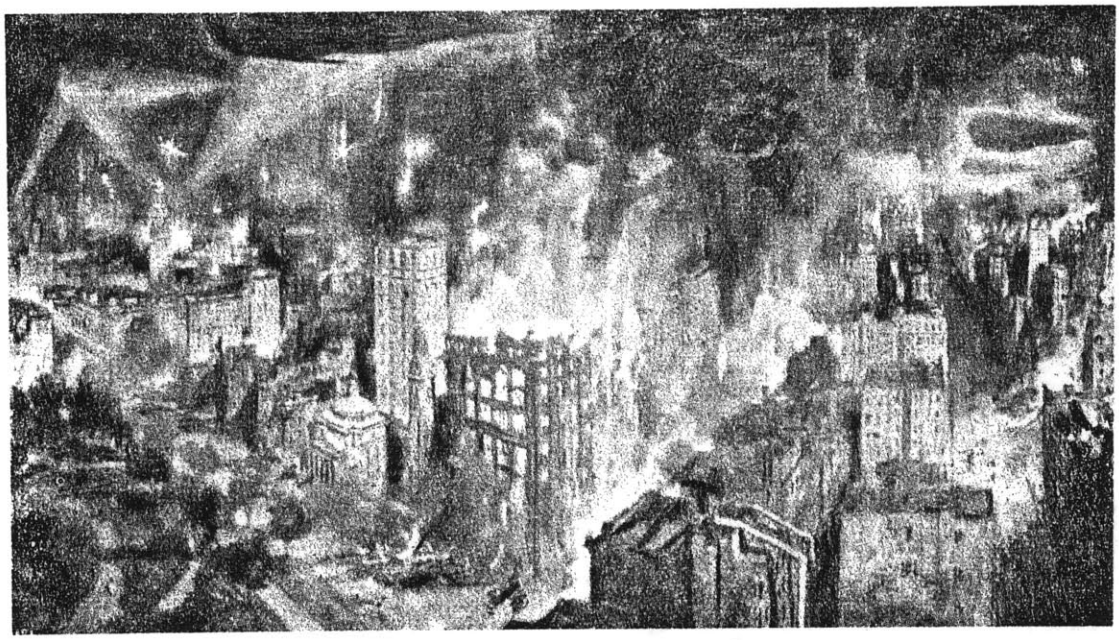
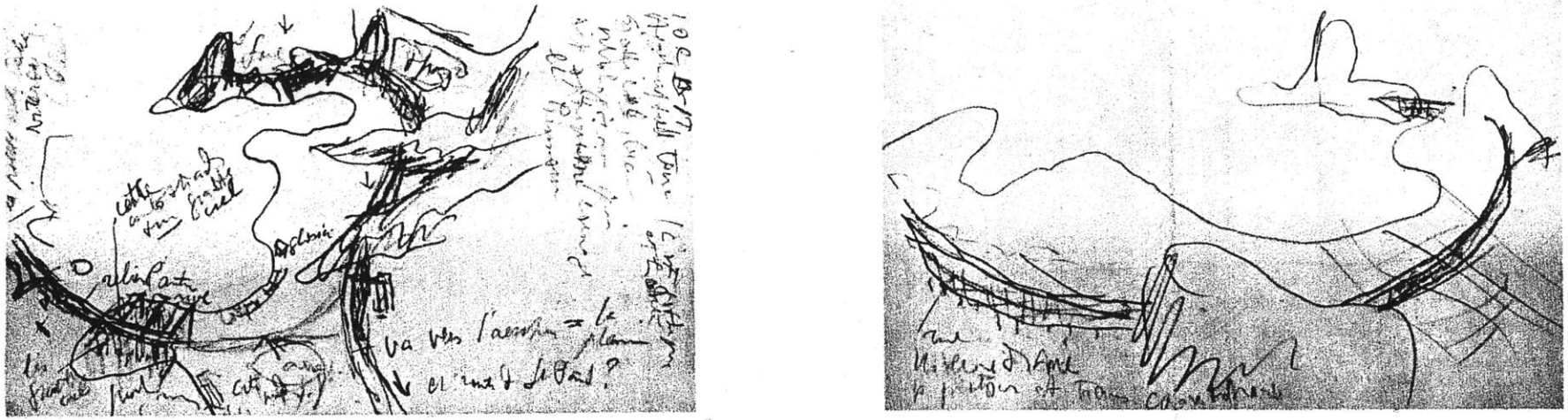


Fig. 32: H. G. Wells, Aerial bombardment of New York, *The War in Air* (1908) reprinted in *Three Science Fiction Novels* (New York: Dover Publications, Inc., 1963): 133.

111 Rio de Janeiro, enclosed.



112 Two sketches made during a flight in 1929, just when the conception of a vast programme of organic town-planning came like a revelation.

Fig. 33: Le Corbusier, Sketch for Rio de Janeiro (1929), reprinted Le Corbusier, *Aircraft* (New York: The Studio Publications Inc., 1935): 111-113.

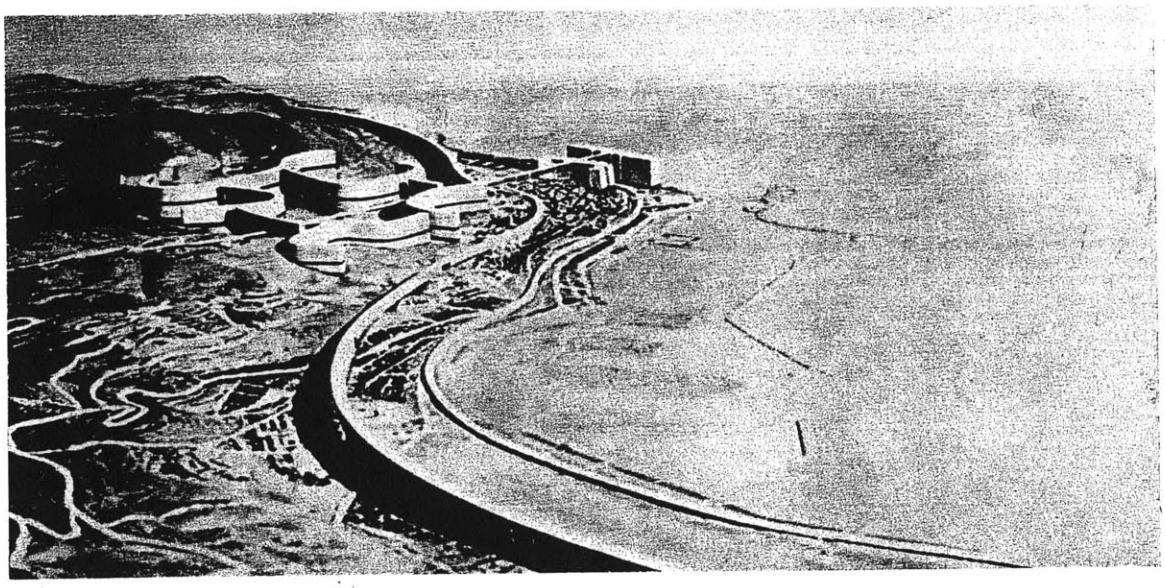


Fig. 34: Le Corbusier, The Plan Obus (1931), reprinted in Le Corbusier, *The Radiant City* (New York: The Orion Press, 1964; first published in 1933 in France under the title of *La Ville Radieuse*): 236.

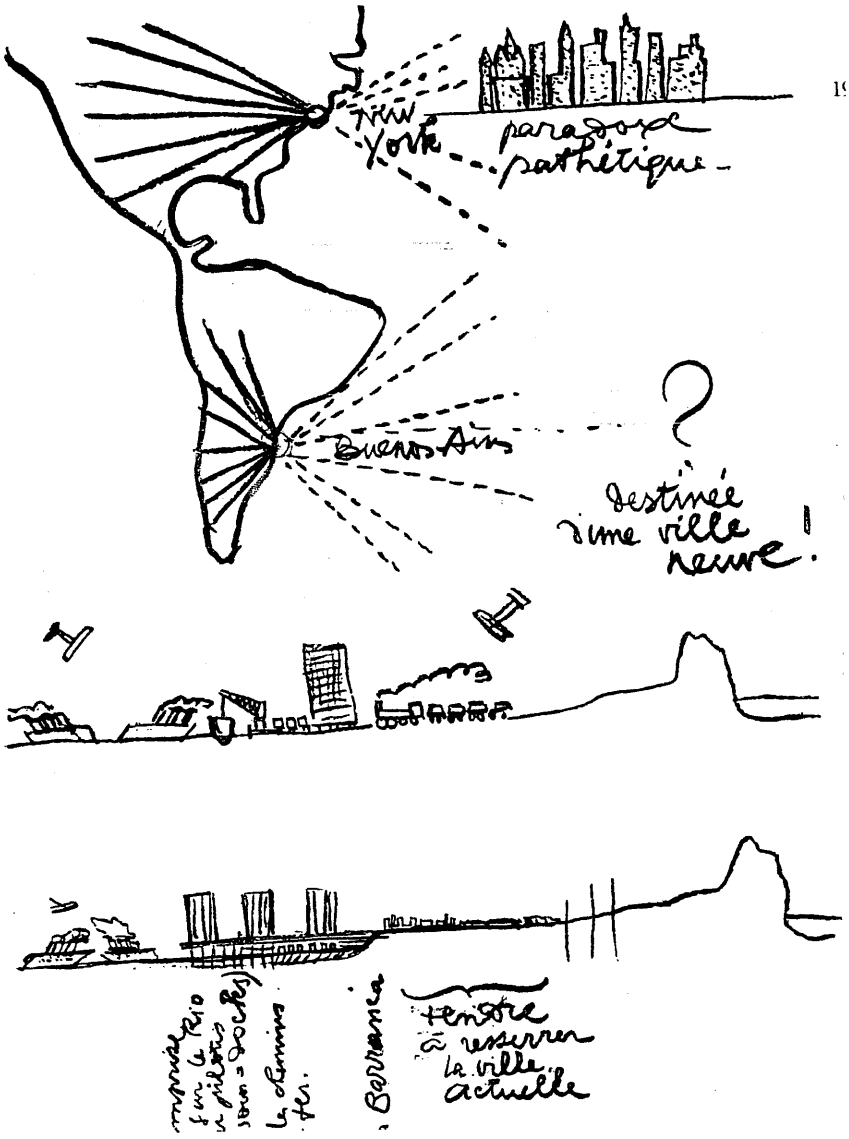


Fig. 35: Le Corbusier, The World City (1929), reprinted in Le Corbusier, *The Radiant City*: 220.

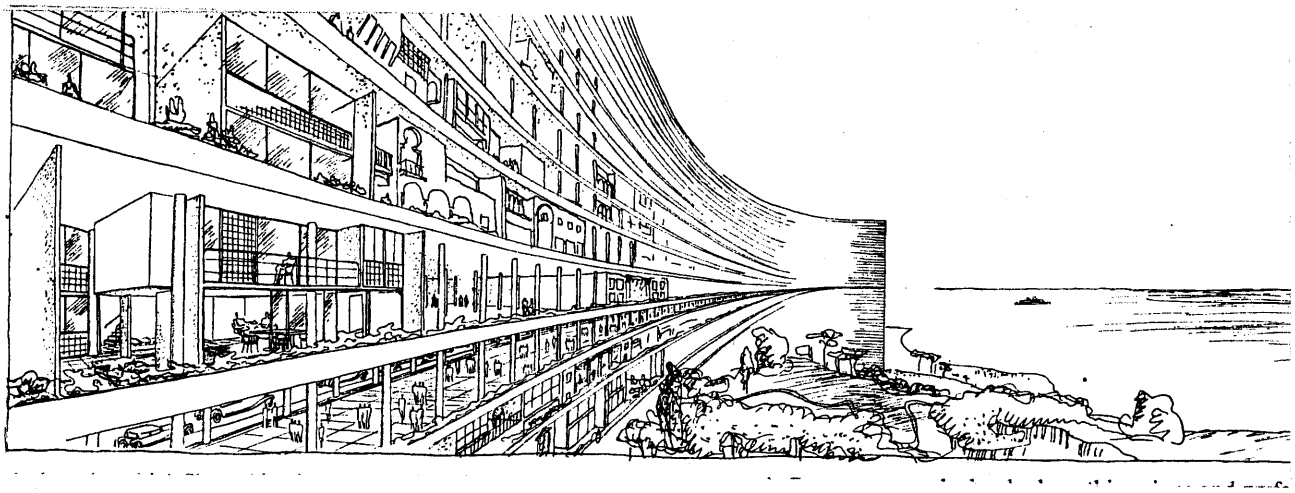
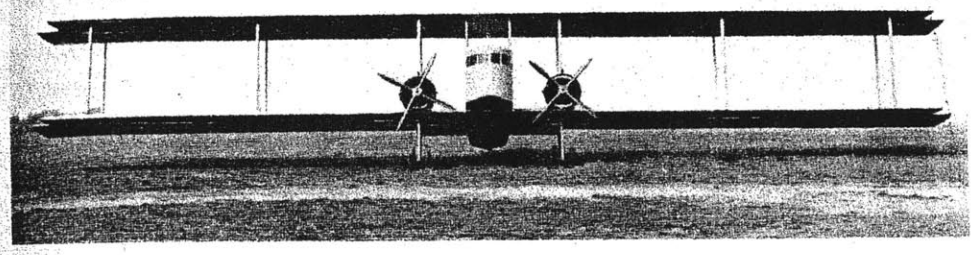


Fig. 36: Le Corbusier, The Plan Obus (1931), elevation, reprinted in Le Corbusier, *The Radiant City*: 247.



AIR EXPRESS. A FARMAN "GOLIATH"

outside her boudoir; she goes to tea-parties. The modern man and woman are bored at home; they go to night-clubs. But lesser folk who have no clubs gather together in the

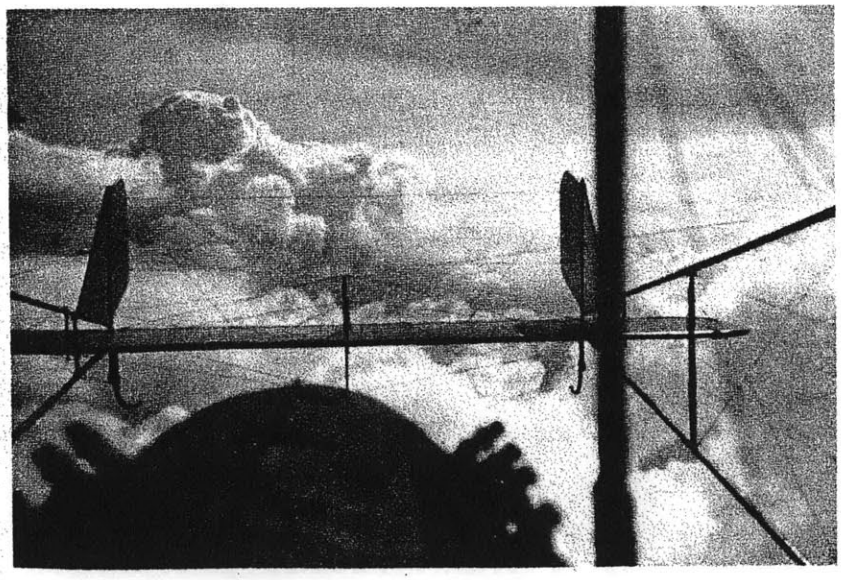


Fig. 37: Le Corbusier's double gaze in *Towards a New Architecture* (New York: Dover Publications, Inc. [1927]): 121.

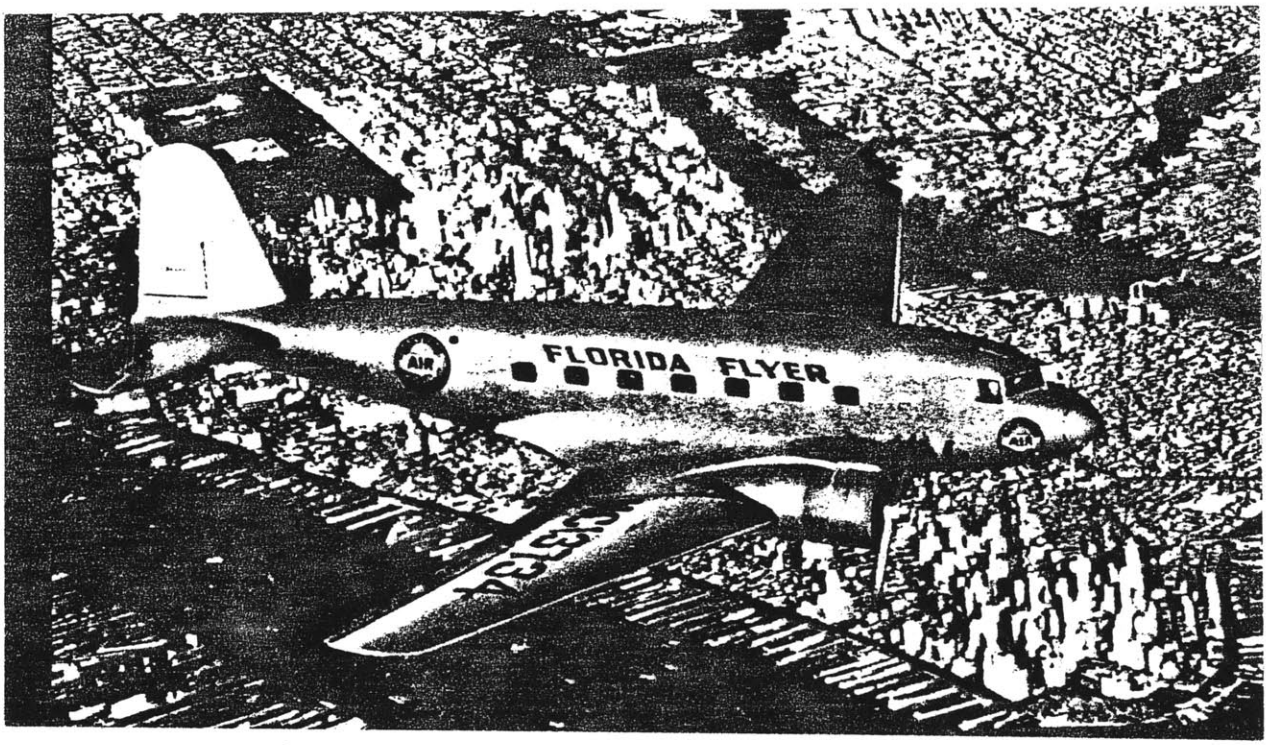
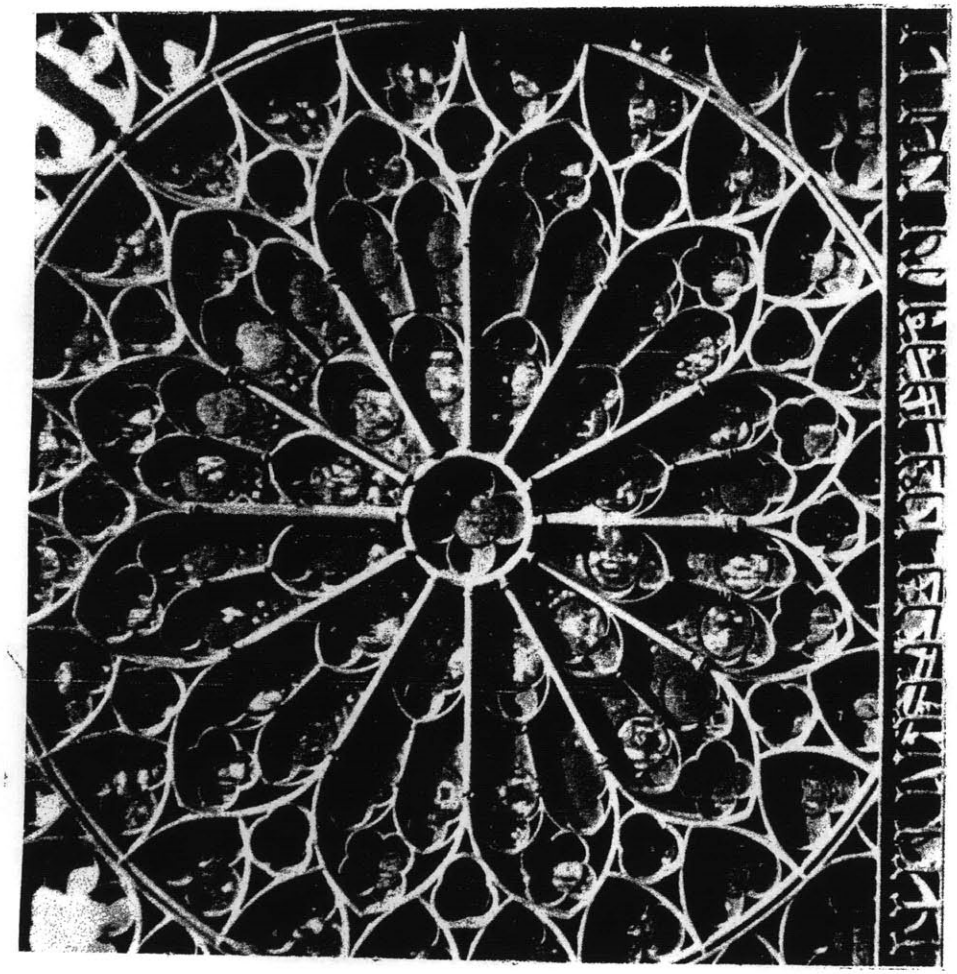


Fig. 38: Le Corbusier, Airplane/Manhattan, *Aircraft* (New York: Universe Books, 1988 [1935]), backcover.



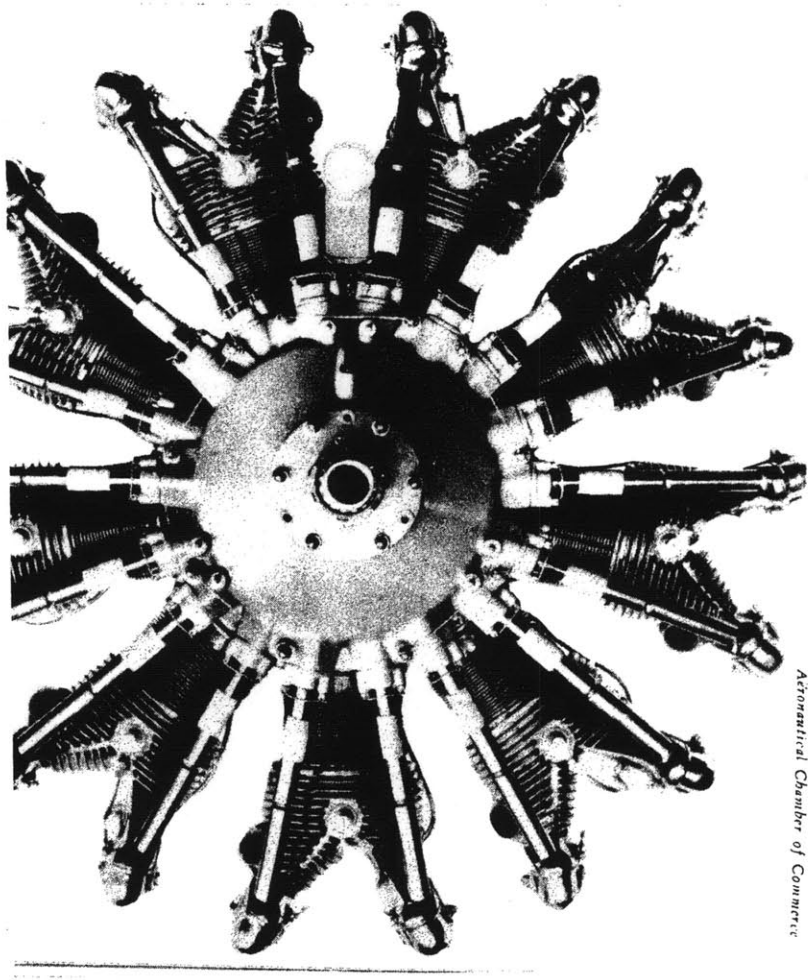


Fig. 39: Norman Bel Geddes, Rose Window and the airplane motor, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 276-77.

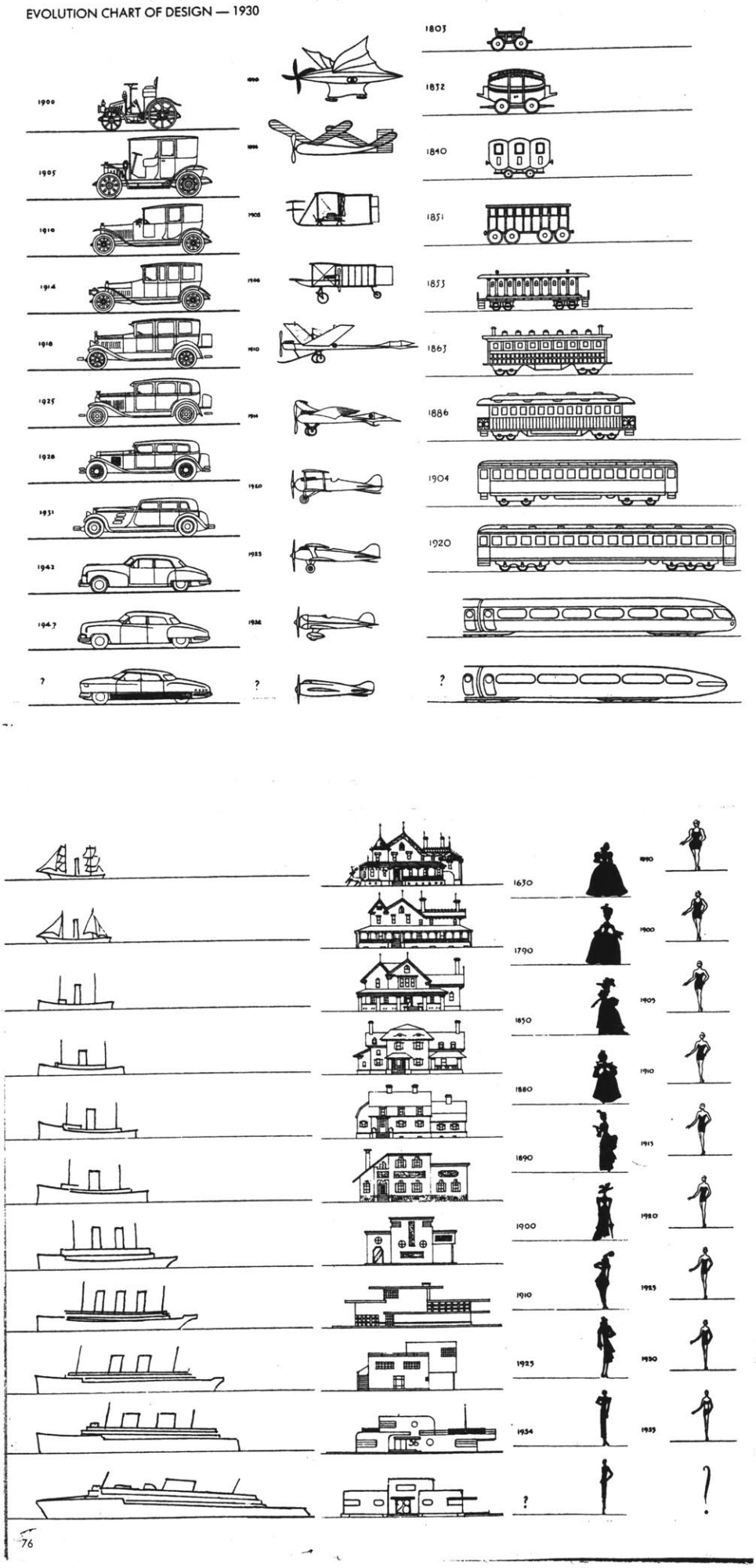


Fig. 40: Raymond Loewy, the "Evolution Chart of Design—1930," in *Industrial Design, Raymond Loewy* (New York: The Overlook Press, 1979): 75-76.

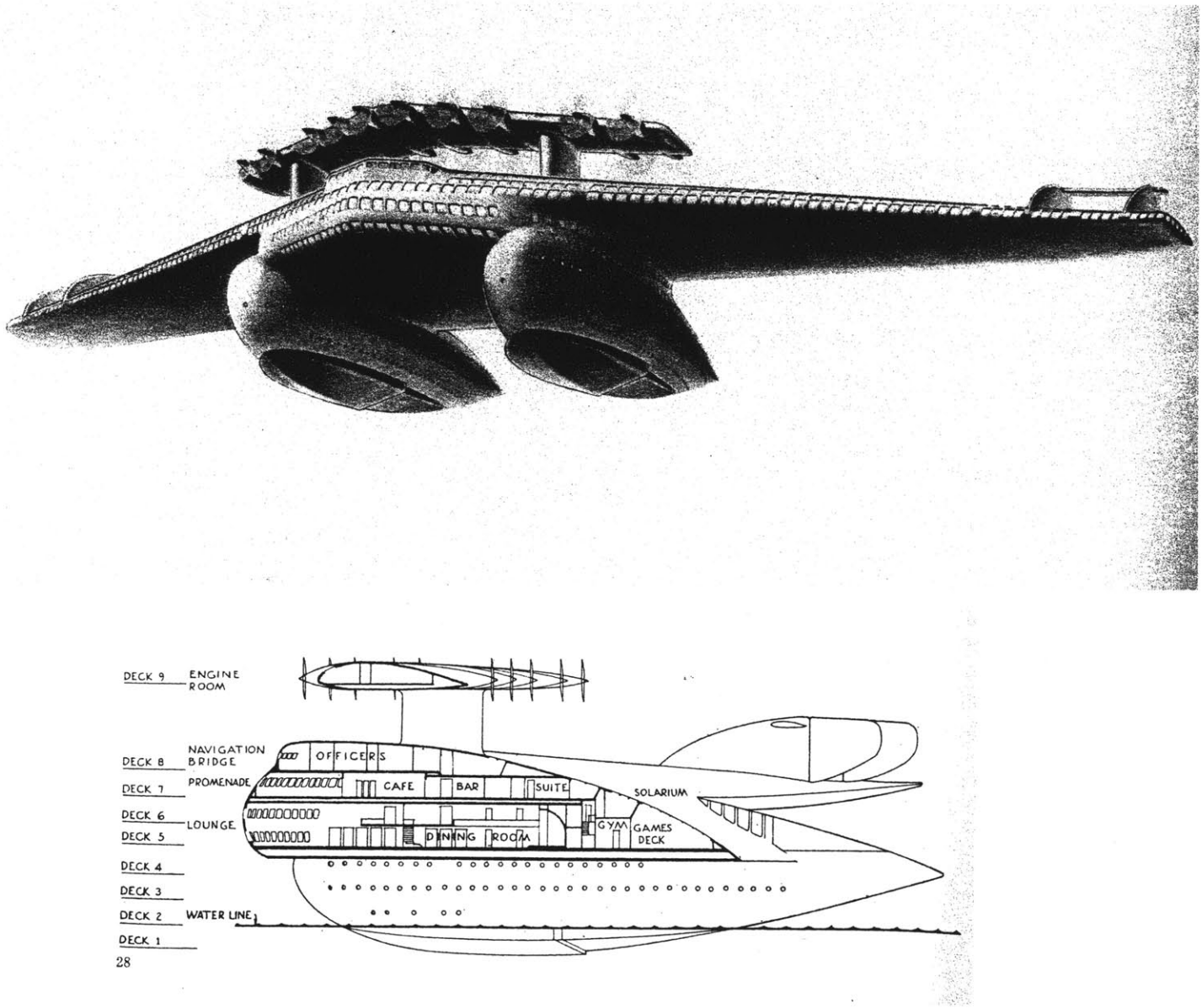
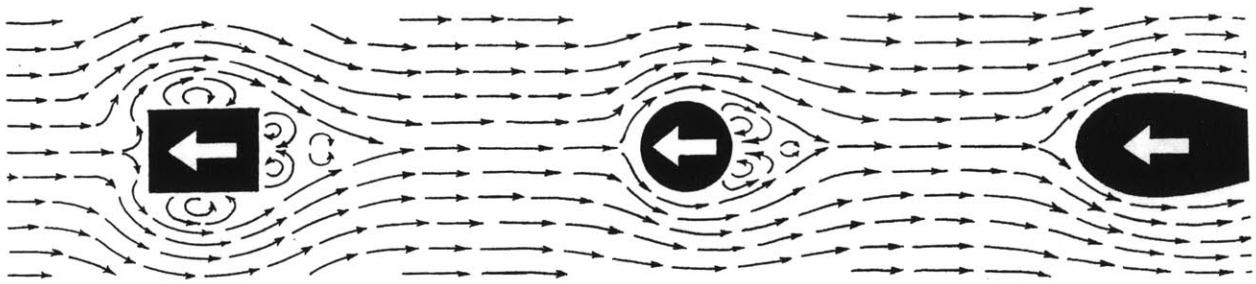


Fig. 41: Norman Bel Geddes, The Air Liner No. 4, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 110, 115.



33 · DIAGRAM ILLUSTRATING THE PRINCIPLE OF STREAMLINING

Fig. 42: Norman Bel Geddes, "the principle of streamlined," in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 45.

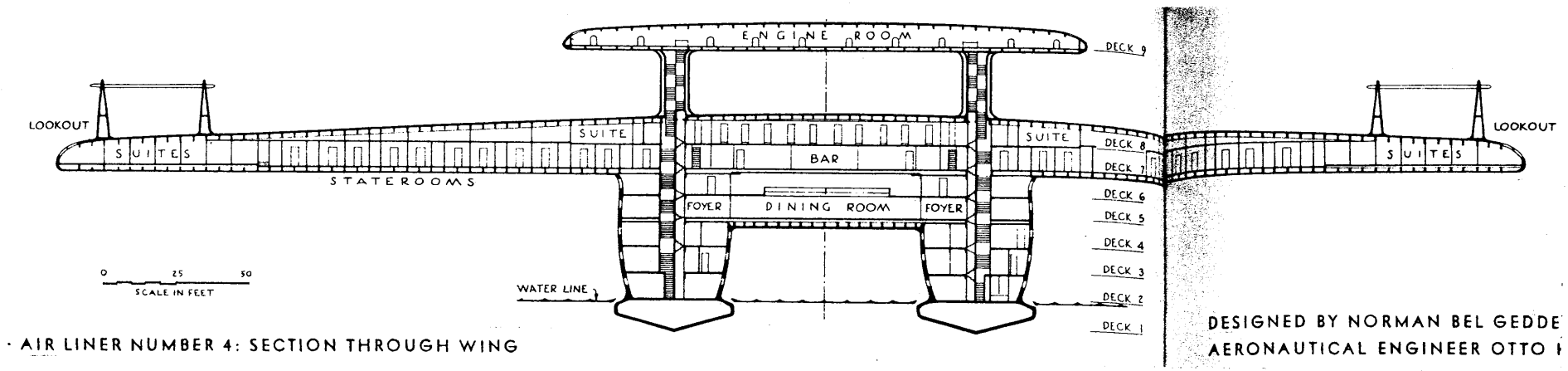


Fig. 43: Norman Bel Geddes, The Air Liner No. 4, details, in Norman Bel Geddes, *Horizons* (Boston: Little, Brown, and Company, 1932): 114, 115.

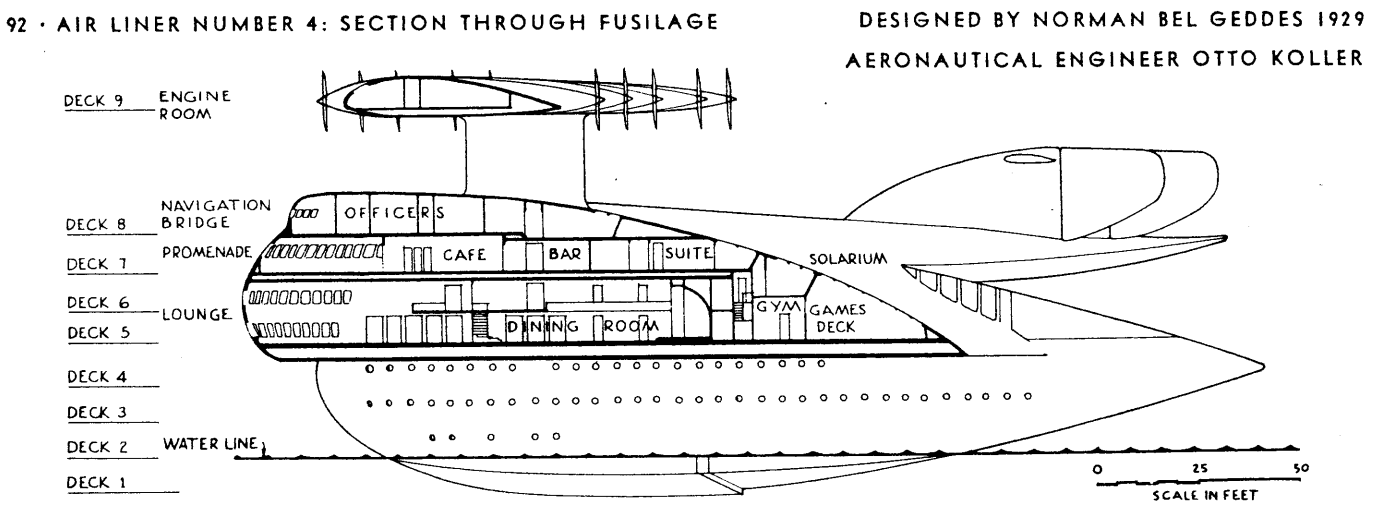
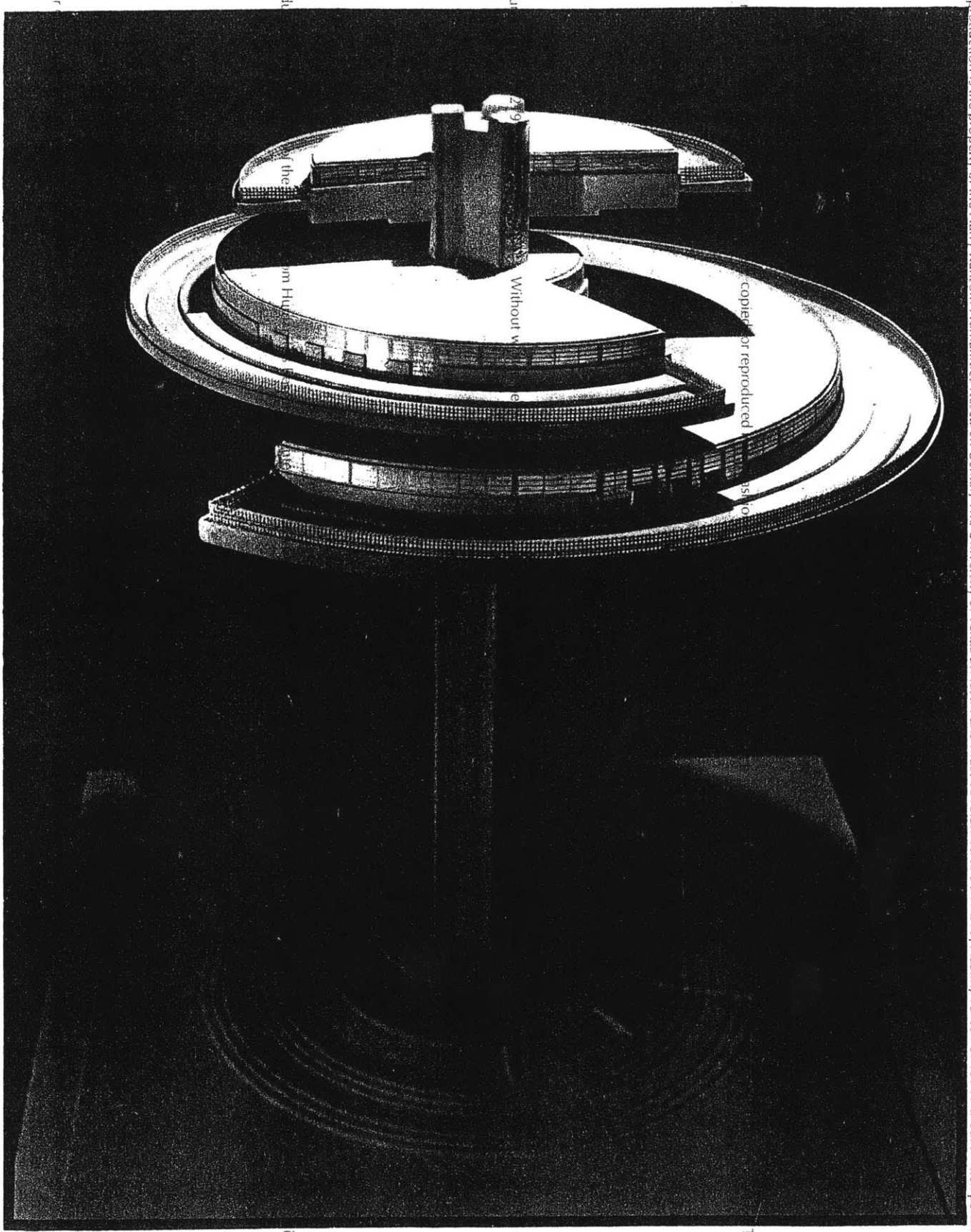


Fig. 44: The fantastic island of Laputa in *Gulliver's Travels* (1726), reprinted in David Kyle, *Pictorial History of Science Fiction* (London: Hamlyn, 1976): 16.

Fig. 45: Norman Bel Geddes, *Aerial* Restaurant, 1929, Norman Bel Geddes Collection (File 169), Humanities Research Center at UT Texas, Austin.



© Norman Bel Geddes

This reproduction is the property of the Harry Ransom Humanities Research Center, The University of Texas at Austin and must be returned to Box 7219, Austin, Texas 78713. Without written permiss

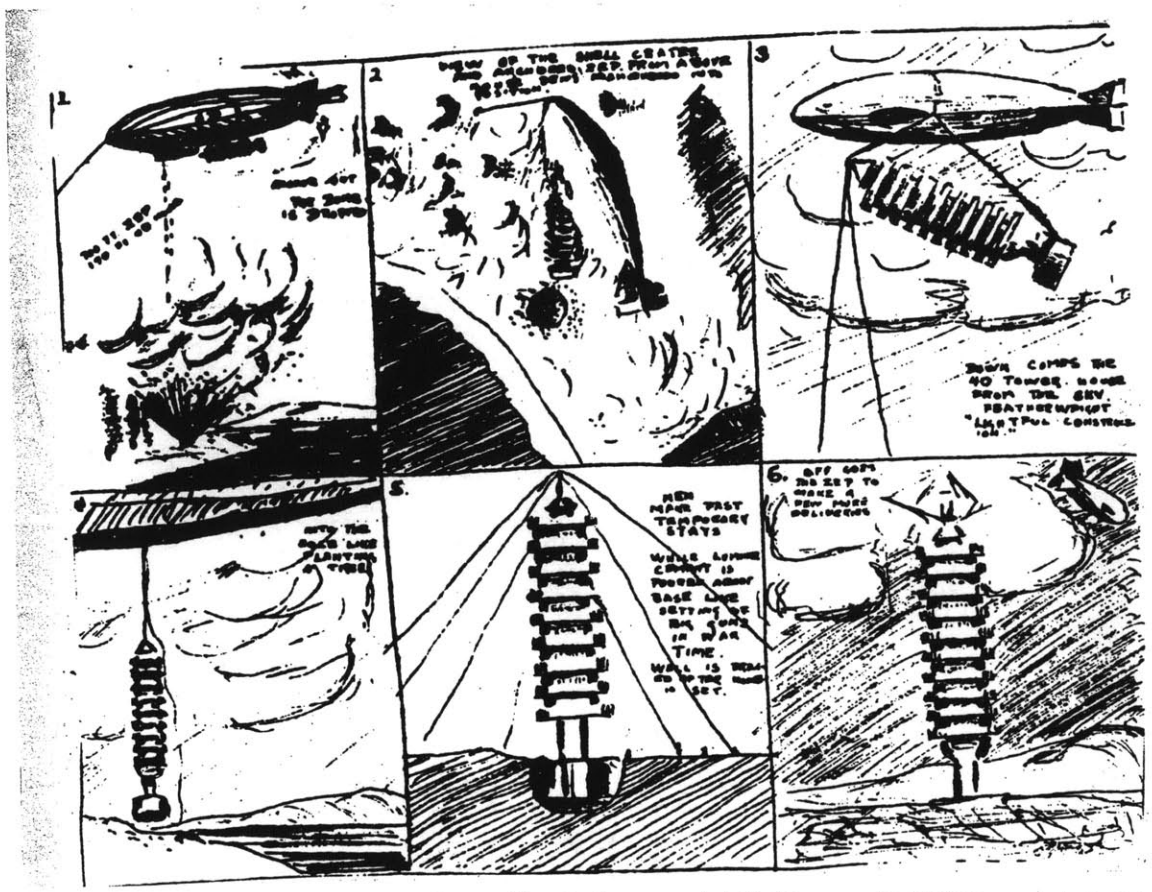


Fig. 46: Buckminster Fuller, "Zeppelin Delivery of 4-D Houses," (1927), reprinted in Bell Upton, *Architecture in the United States* (Oxford: Oxford University Press, 1998): 179.

A Prediction

This illustration reproduced from the magazine *SCIENCE AND INVENTION* of February, 1922, shows a city 10,000 years hence as conceived by Hugo Gernsback, and based on a prediction of Captain Lawson of aerial fame. The city the size of New York will float several miles above the surface of the earth, where the air is cleaner and purer and free from disease carrying bacteria. Gravity-nullifying devices were pictured as the means of keeping these cities suspended. Four gigantic generators will shoot earthward electric rays which by reaction on the earth produce the force to keep the city aloft. By increasing or decreasing the electrical energy the city may be raised or lowered as desired. The city is roofed over by a substance which is transparent, strong and unbreakable. The atmospheric pressure within the city will probably be four or five pounds per square inch instead of 14.7, as it now is. Possibly, therefore, future men will have larger chests than we do. Furthermore, by rising above the clouds we will be freed from rain, snow and thunder showers. We will have in fact perpetual sunlight. The city will derive its energy from the sun, the solar energy being converted into electrical energy.

Fig. 47: Hugo Gernsback, "a city 10,000 years hence" *Science and Invention,* (February, 1922), reprinted in David Kyle, *Pictorial History of Science Fiction* (London: Hamlyn, 1976): 55.

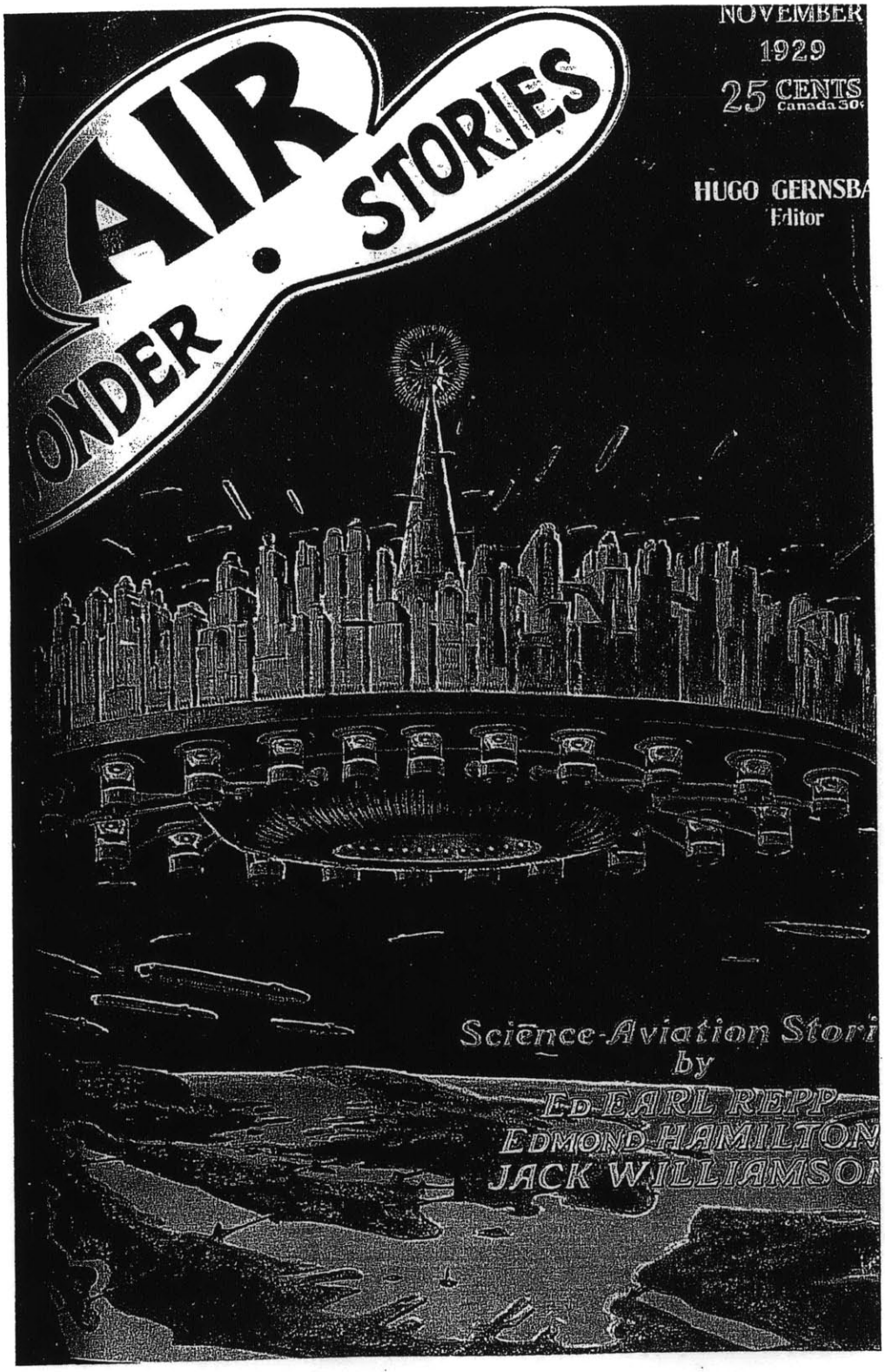


Fig. 48: "City in the Air," *Air Wonder Stories* (1929).

Fig. 49: The Aerial Restaurant on the cover of *Popular Mechanics* (July 1930).

This reproduction is the property of the Harry Ransom Humanities Research Center, The University of Texas at Austin and must be returned to Box 7219, Austin, Texas 78713. Without written permission from the copyright holder no portion of this material may be quoted, copied, or reproduced in any fashion.

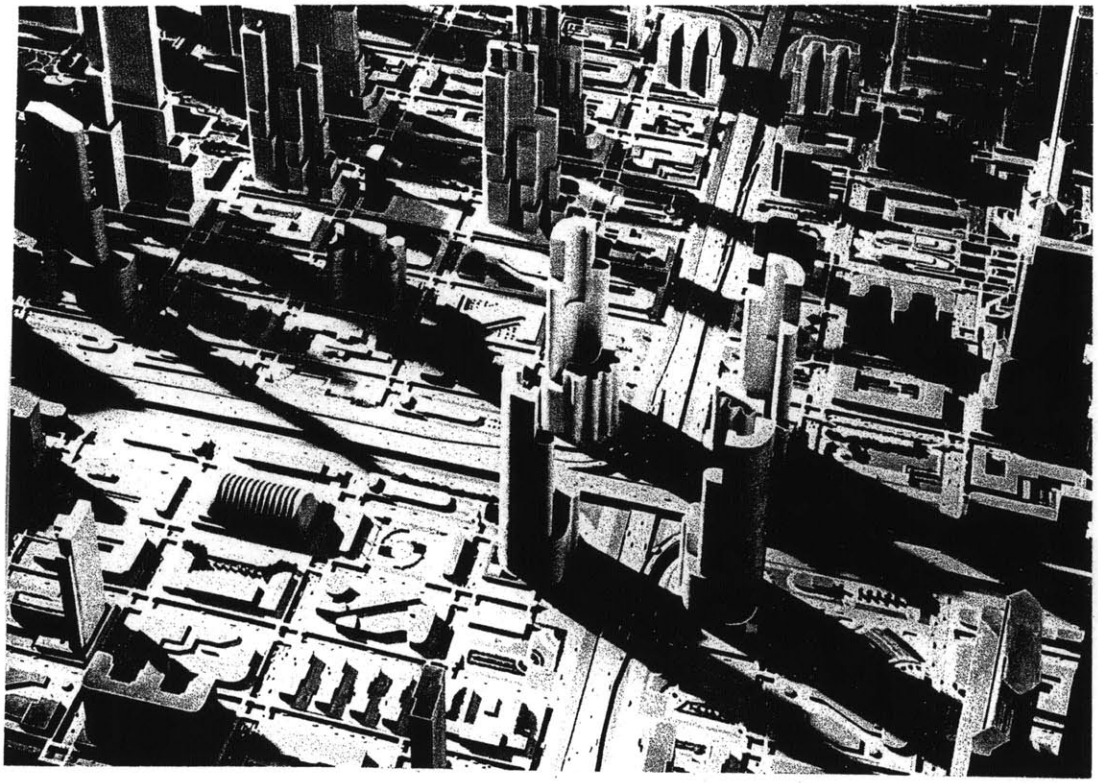


Fig. 50: Norman Bel Geddes, City of Tomorrow (1936), Shell Oil Company, reprinted in Jeffrey Meikle, The City of Tomorrow: Model 1937: 18.

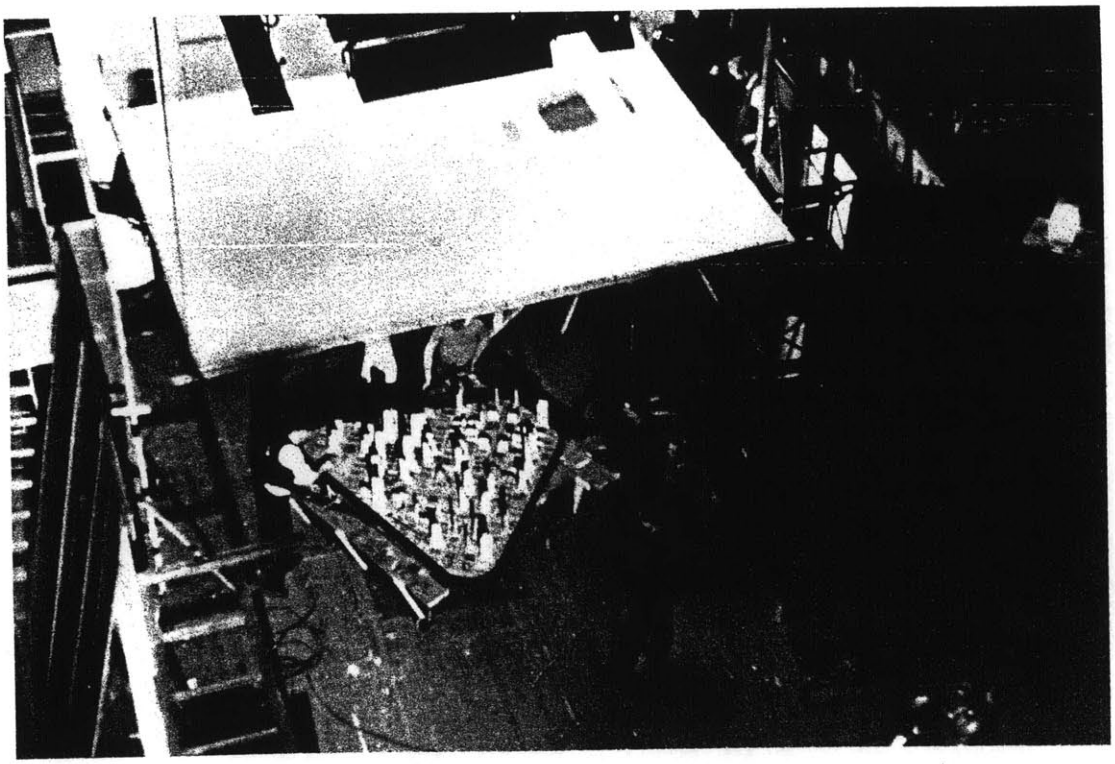


Fig. 51: Norman Bel Geddes, City of Tomorrow, aerial shooting, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 24.

Fig. 52: Norman Bel Geddes, City of Tomorrow, aerial shooting, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 26.

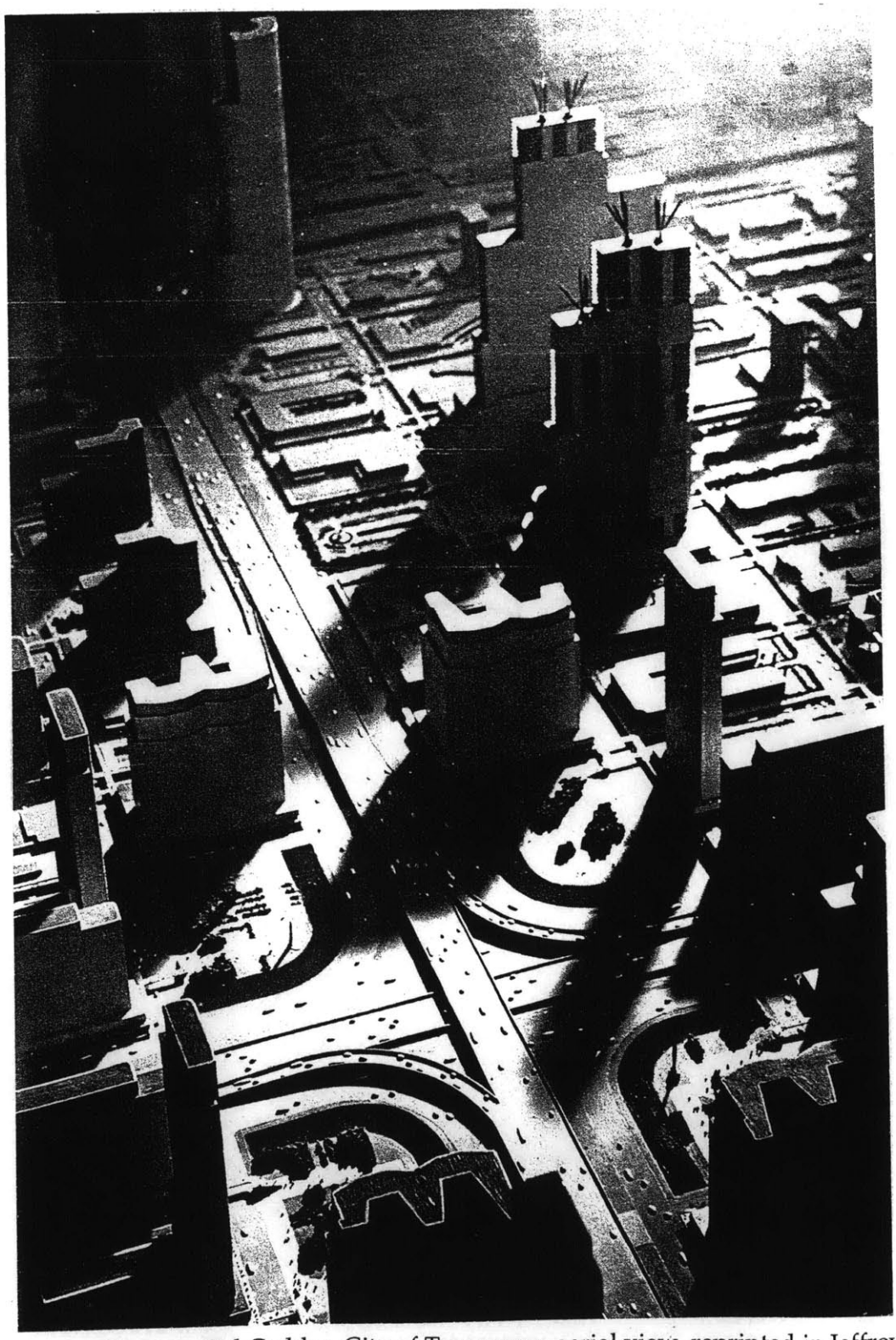


Fig. 53: Norman Bel Geddes, City of Tomorrow, aerial view, reprinted in Jeffrey Meikle, *The City of Tomorrow: Model 1937*: 14.

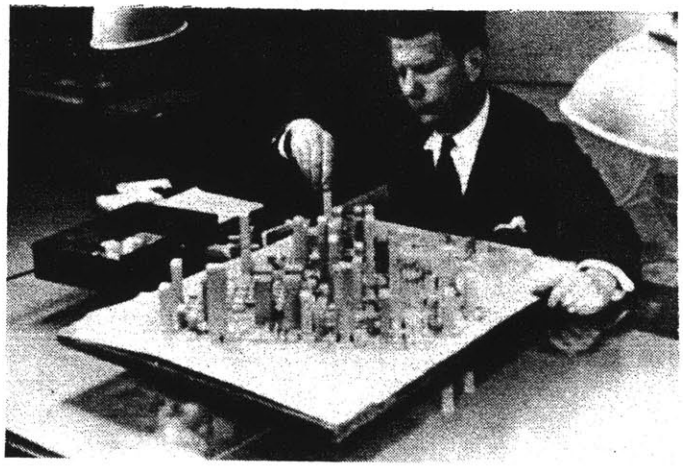


Fig. 54: Norman Bel Geddes, "chess player," reprinted in Meikle, Jeffrey L. *Twentieth Century Limited: Industrial Design im America, 1925-1939* (Philadelphia: Temple University Press, 1979): 208.

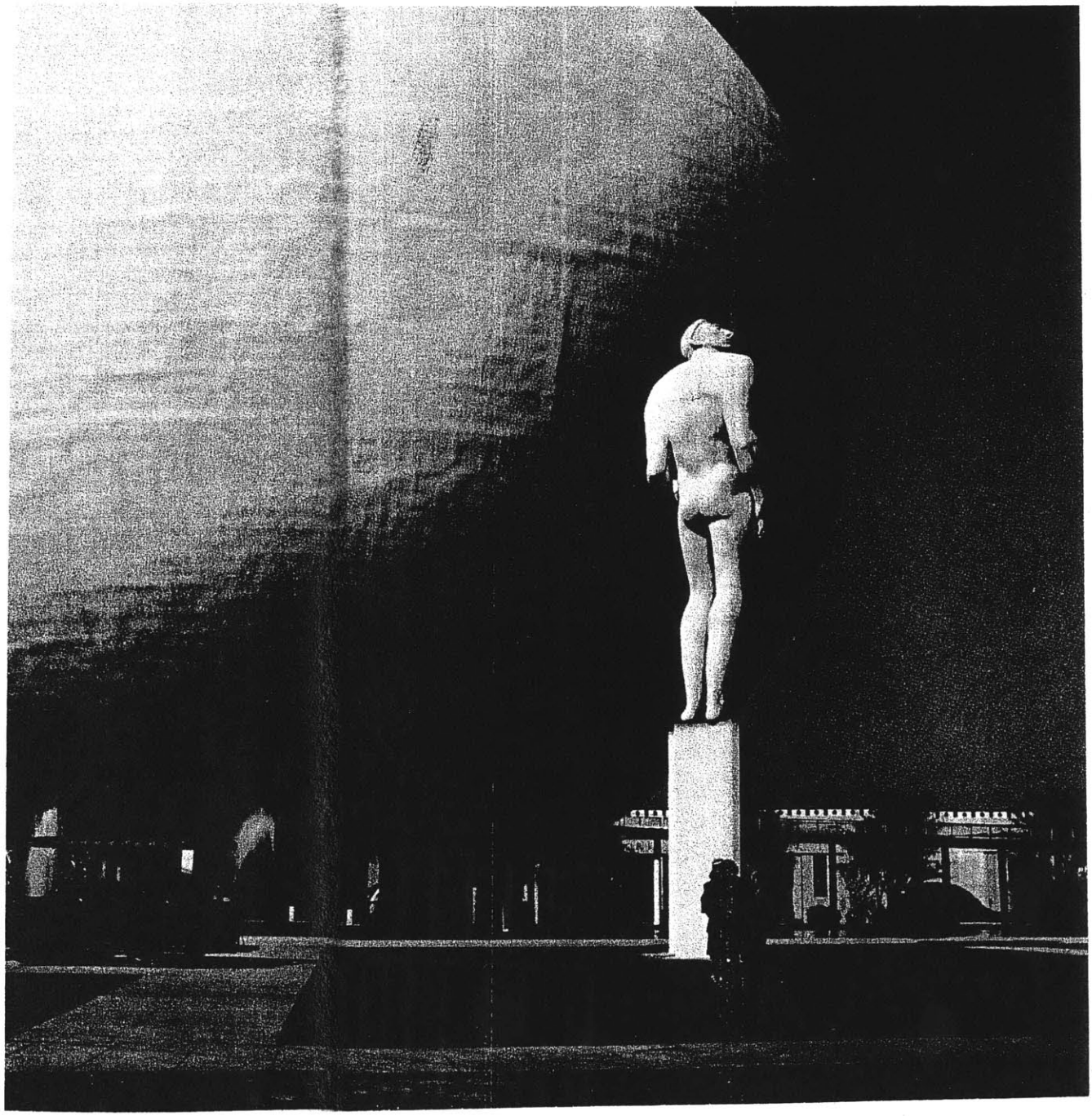


Fig. 55: Carl Milles, *The Astronomer*, 1939 New York World's Fair, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 4.

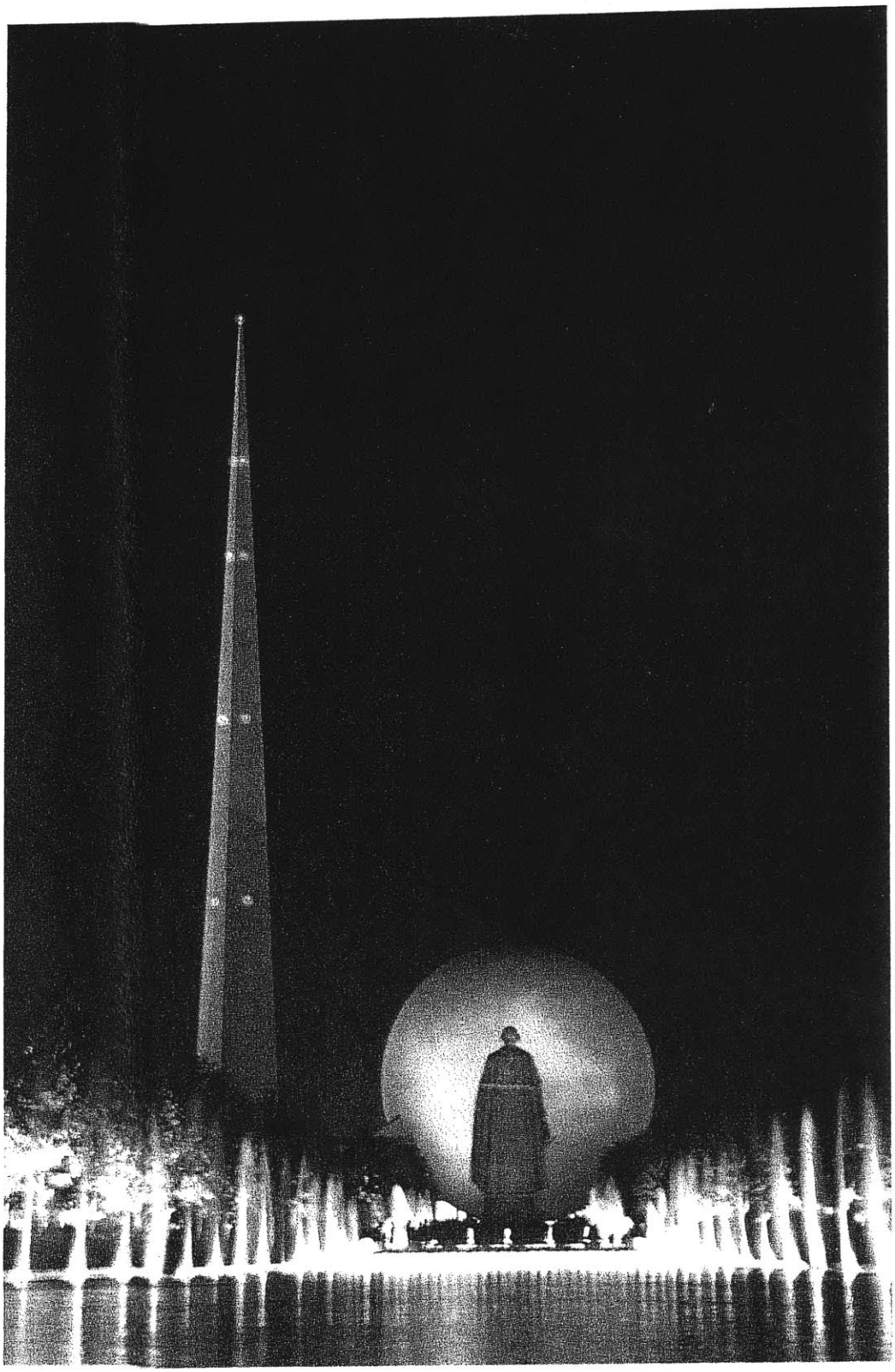


Fig. 56: George Washington and the Perisphere, 1939 New York World's Fair, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 81.

Fig. 57: Henry Dreyfuss, *Democracity*, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 3.

Fig. 58: The Helicline in the Theme Center, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 2.

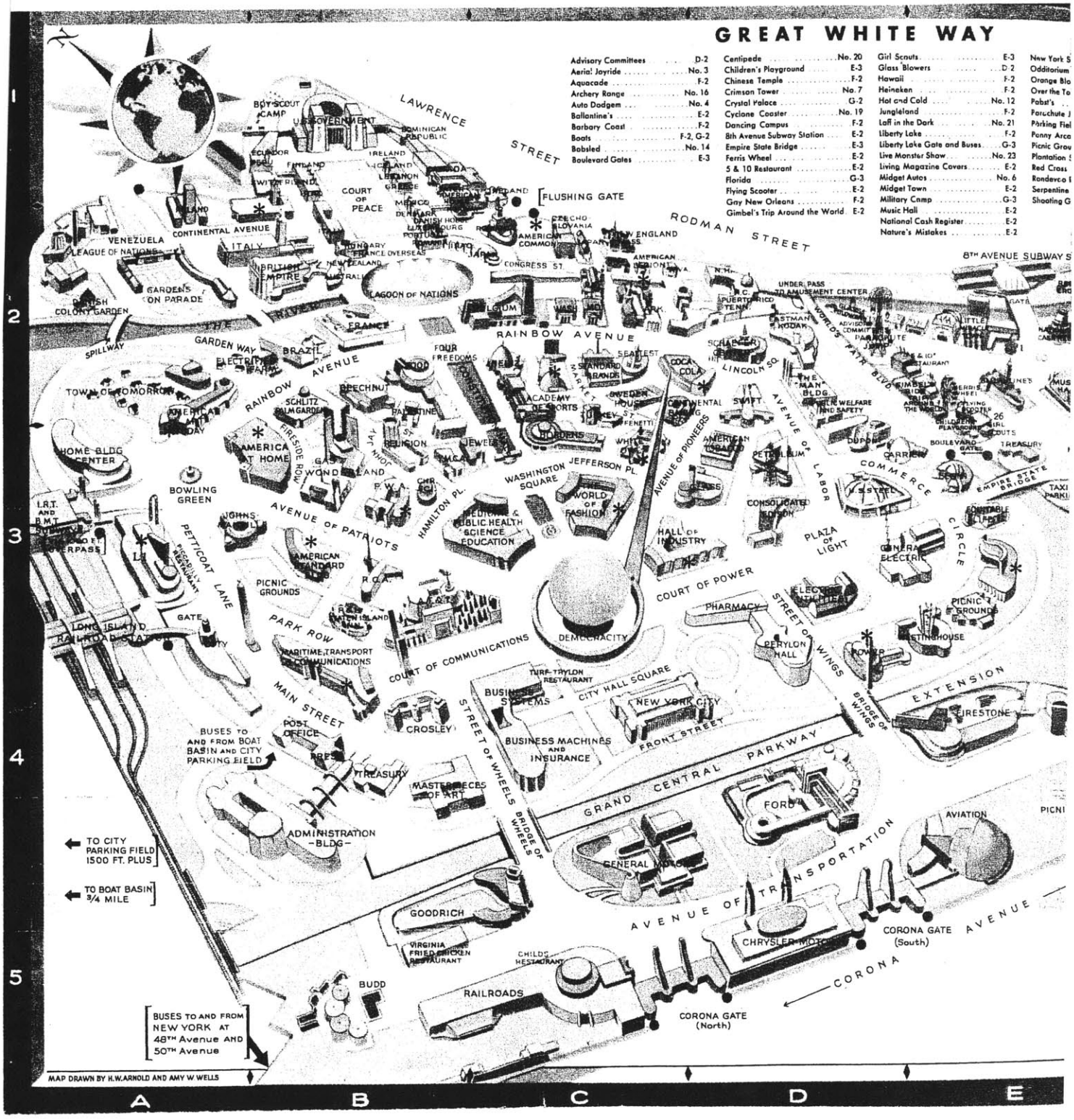


Fig. 59: The bird's-eye view of the 1939 World's Fair complex, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): vi.

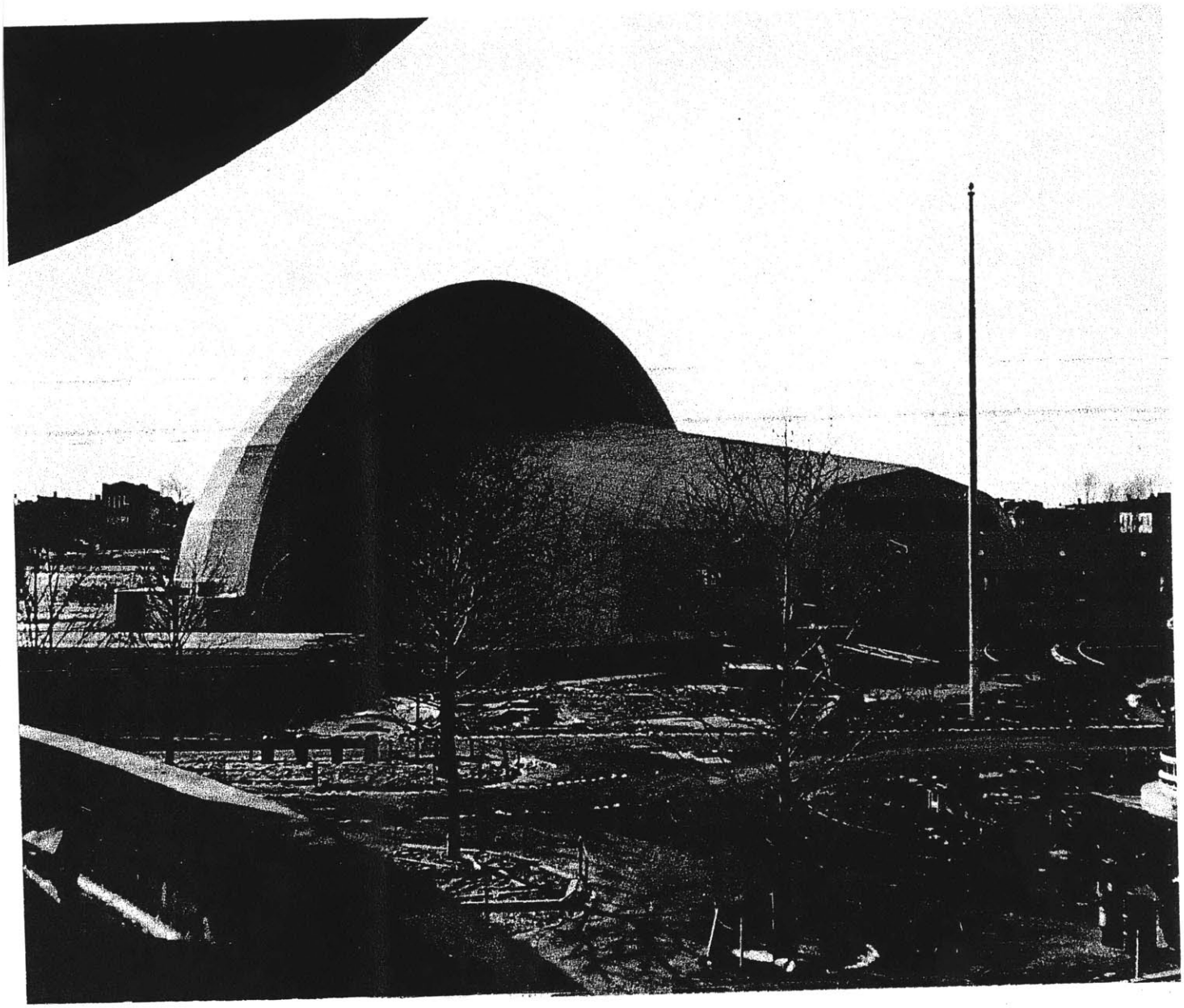


Fig. 60: The Aviation Building, 1939 New York World's Fair, reprinted in Stanley Applebaum, *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 35.

Fig. 61: Rocketport, Focal Exhibit, 1939 New York World's Fair, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 9.

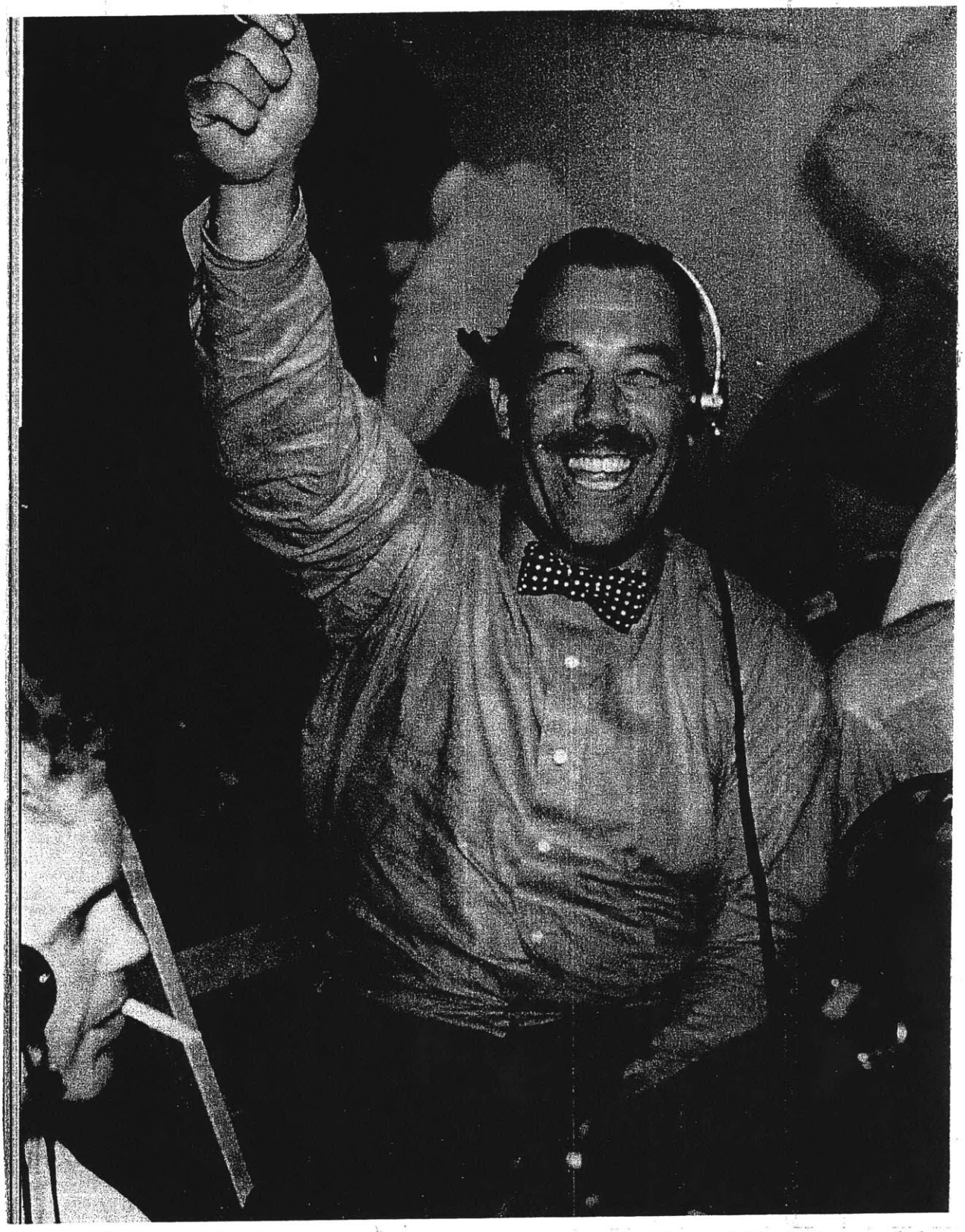


Fig. 62: The 1939 Fair President Grover Whalen celebrating Howard Hughes's round-the-world flight, reprinted in Helen A. Harrison, et al., *Dawn of a New Day: The New York World's Fair, 1939-40* (New York: Queens Museum/New York University Press, 1980): 2.

Fig. 63: Aerial view of the General Motors Building, reprinted in Stanley Applebaum *The New York World's Fair 1939/1940* (New York: Dover Publications, Inc., 1977): 19.

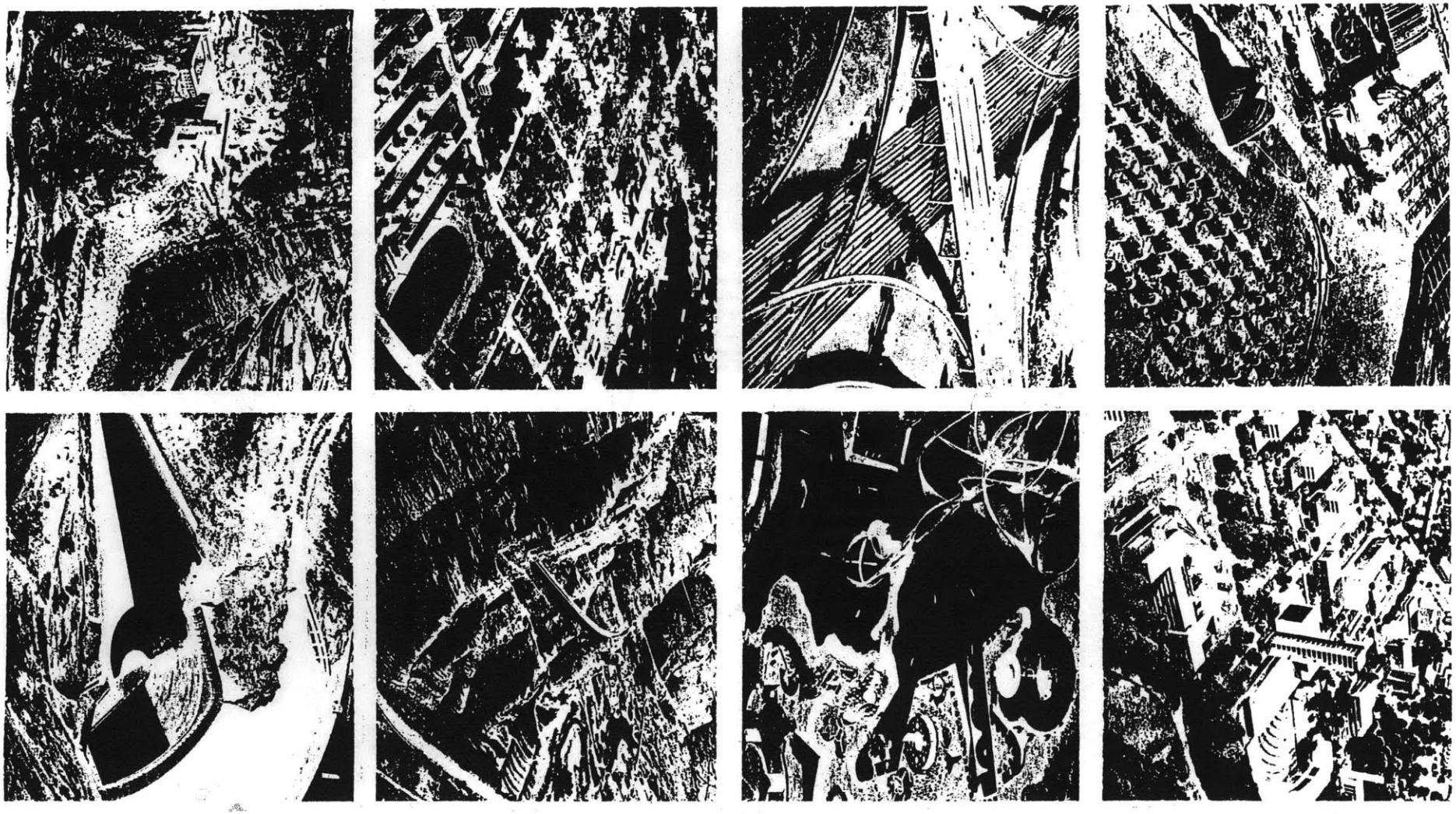


Fig. 64: Aerial shots of the Futurama, *The World of Tomorrow*, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair* (New York: Main Street Press, 1988): 109.

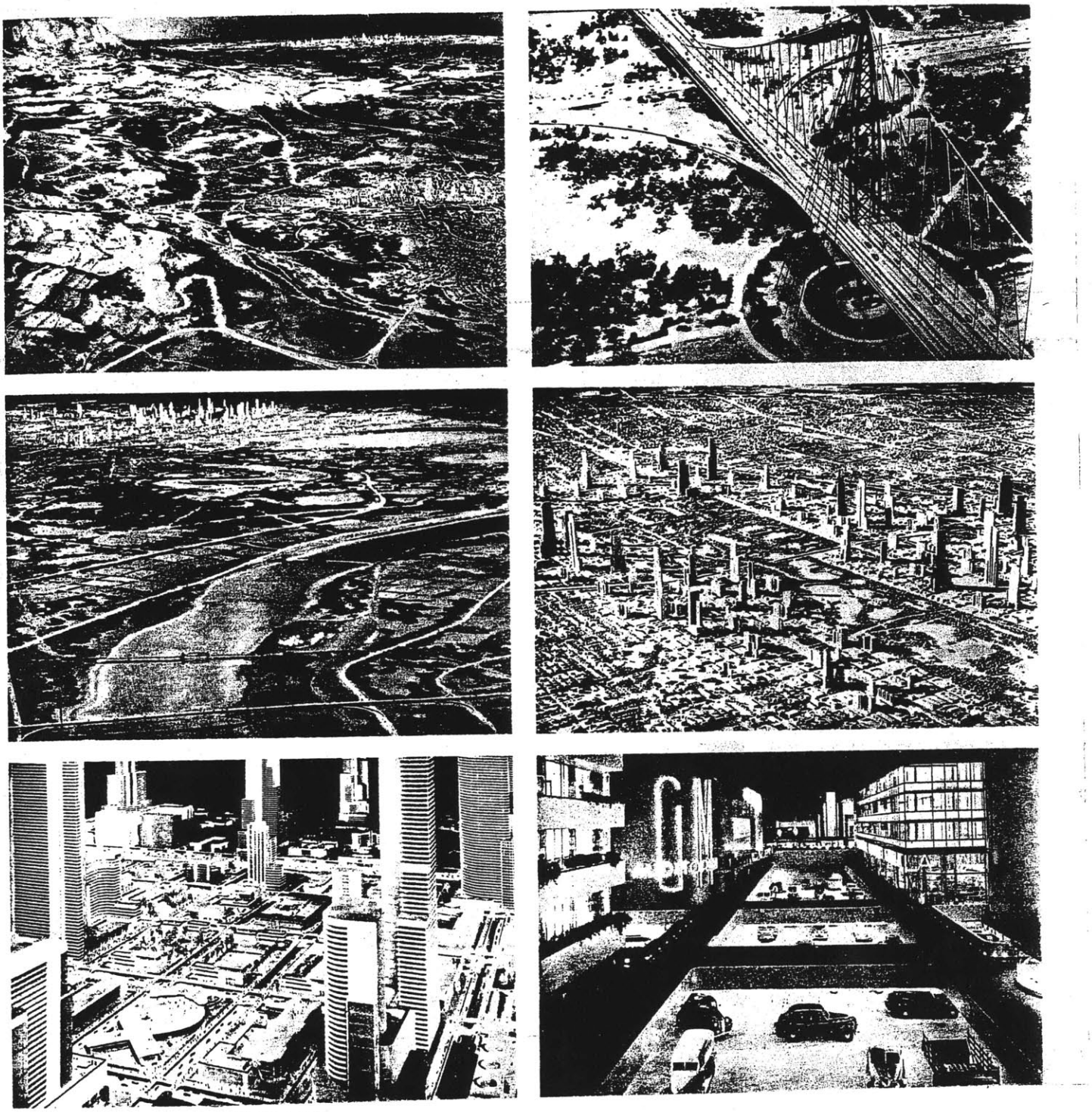


Fig. 65: Aerial shots of the Futurama, *The World of Tomorrow*, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair*. (New York: Main Street Press, 1988): 110.

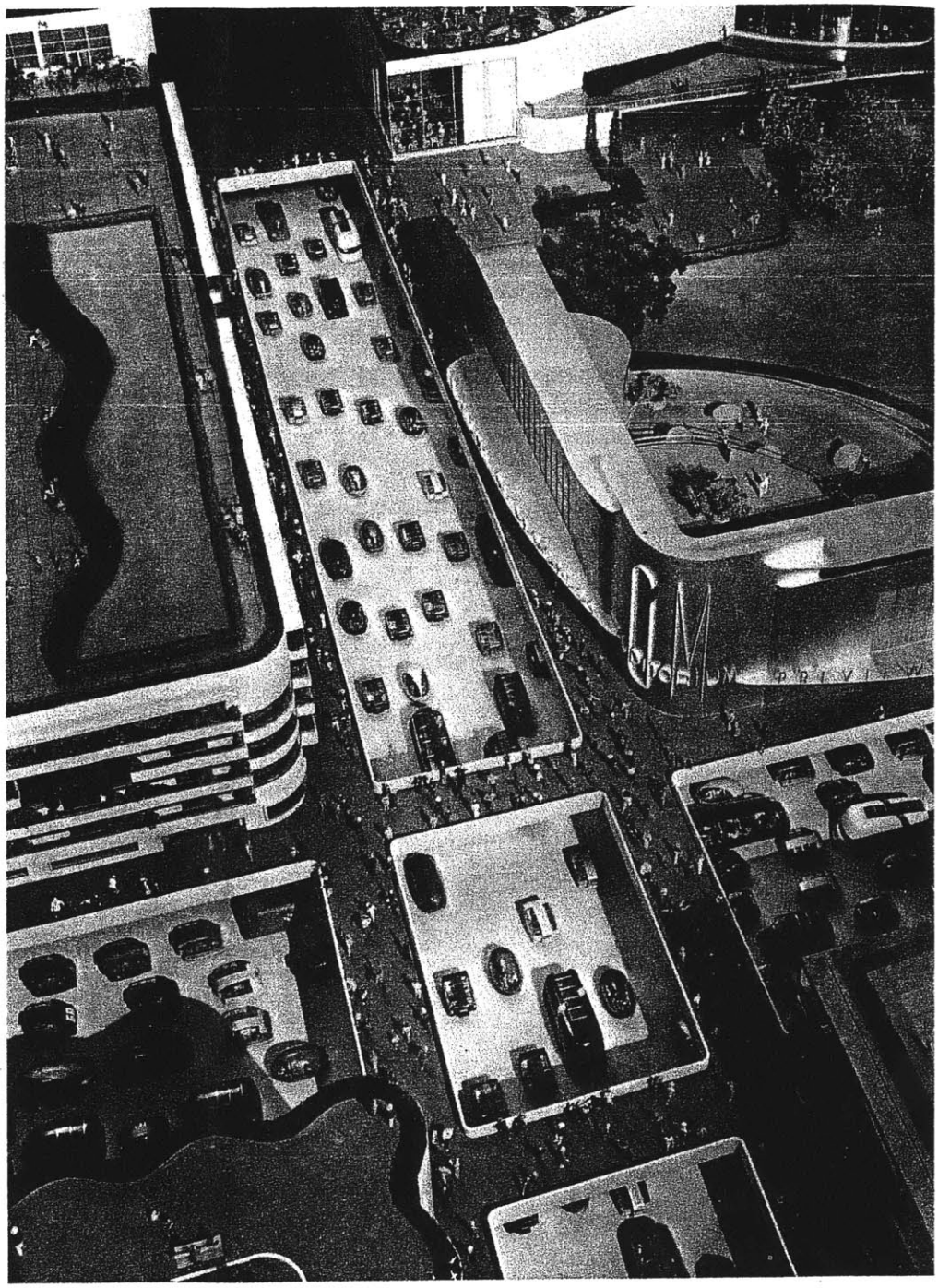


Fig. 66: Aerial view of the Futurama intersection, General Motors Building, reprinted in *Rassegna* (60): 58.

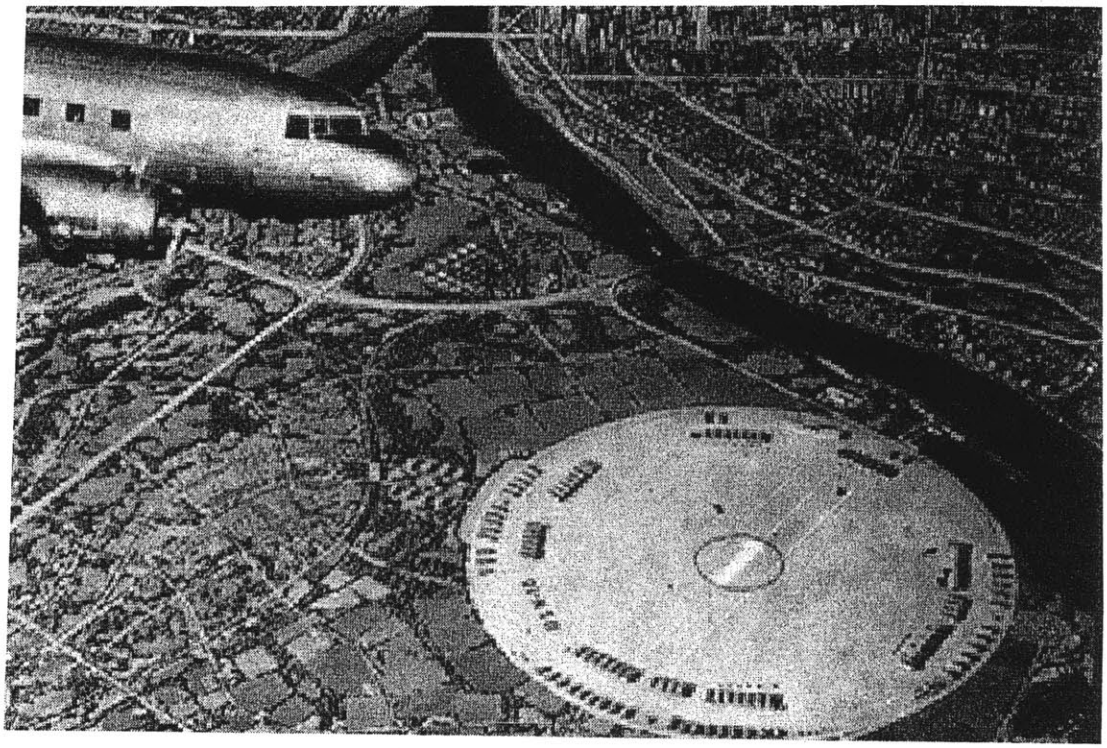


Fig. 67: Airplane superimposed on the Futurama photograph, Norman Bel Geddes Collection (File 381), Humanities Research Center at UT Texas, Austin.

Fig. 68: Emanuel Leutze, *Westward the Course of Empire Takes Its Way* (1861); reprinted in Albert Boime, *The Magisterial Gaze: Manifest Destiny and American Landscape Painting c. 1830-1865* (Washington and London: Smithsonian Institution Press, 1991): 85.

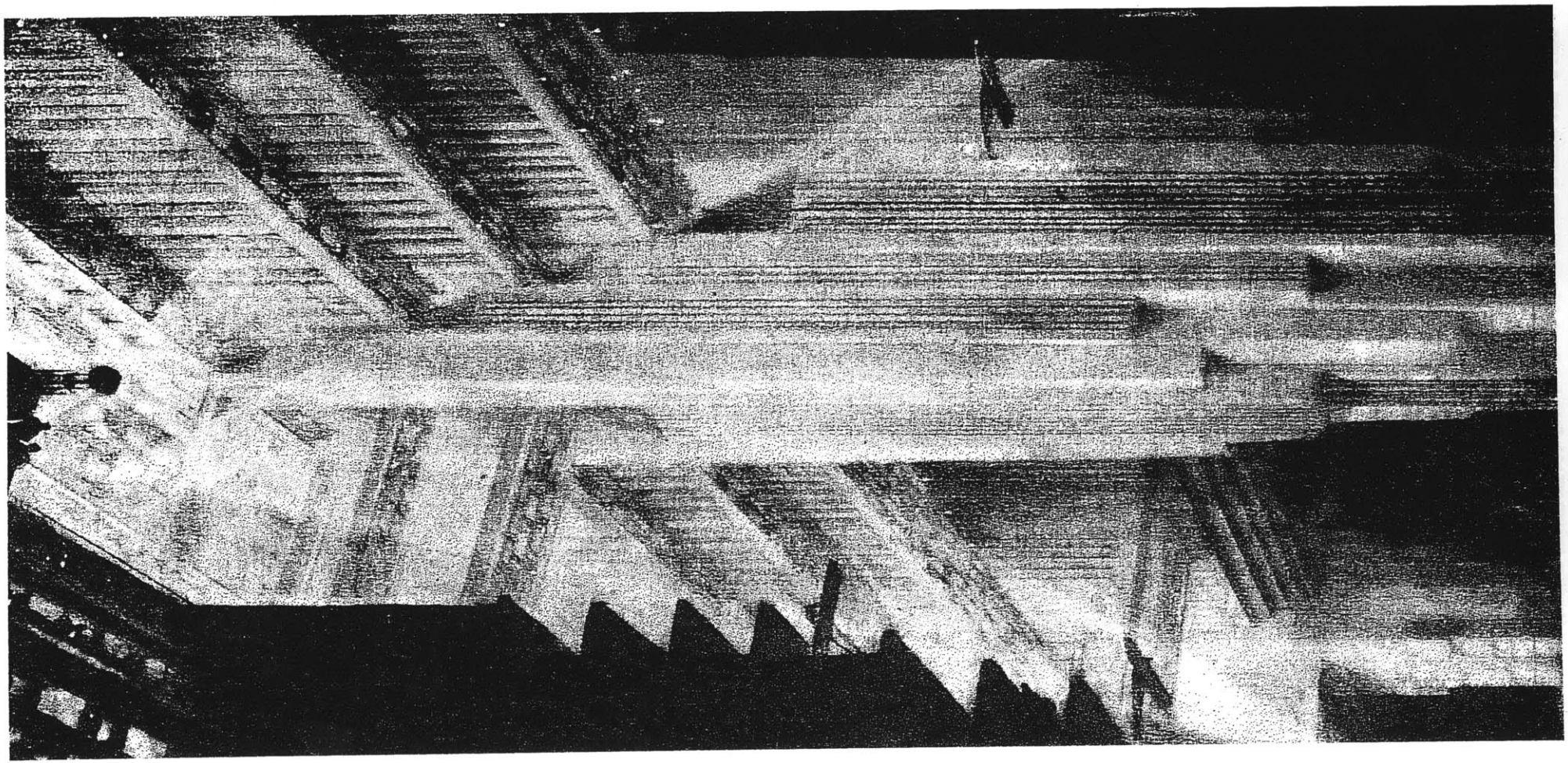


Fig. 69: Hugh Ferriss, *The Metropolis of Tomorrow* (Princeton: Princeton Architectural Press, 1986 [1929]): 65.

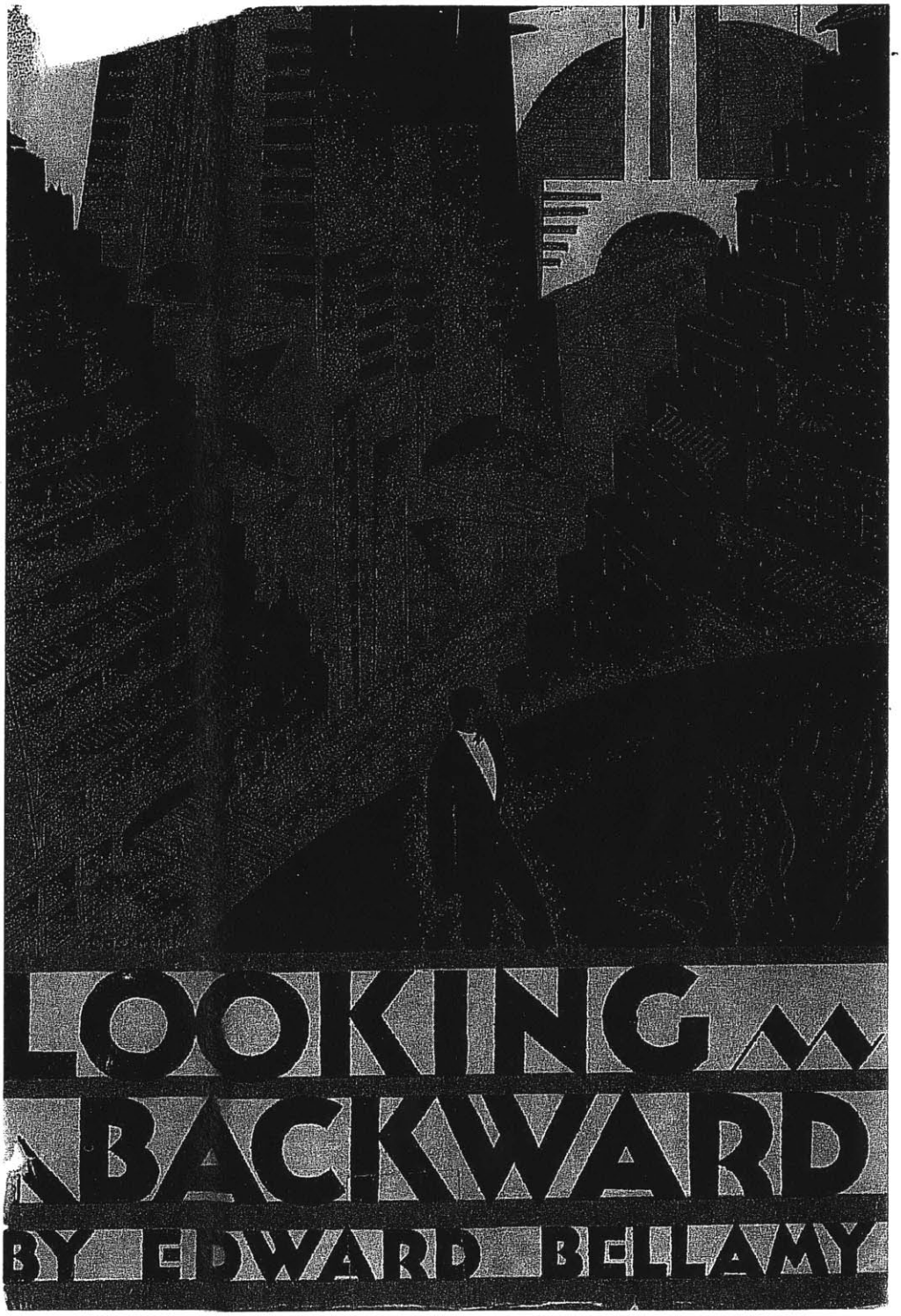


Fig. 70: Edward Bellamy, the cover of *Looking Backward* (1926 edition).

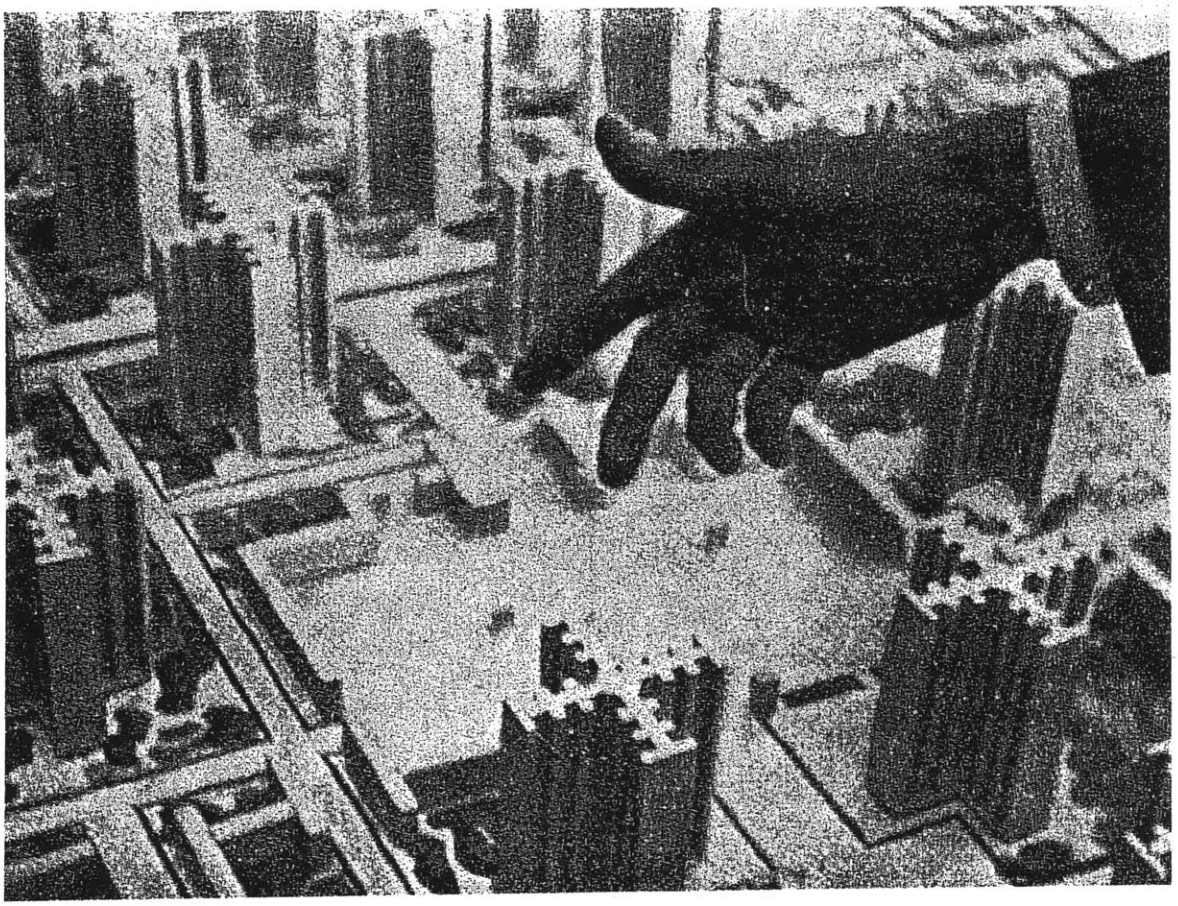


Fig. 71: Le Corbusier's hand over the *Ville Contemporaine*, reprinted in Howard Mansfield, *Cosmopolis, Yesterday's Cities of the Future* (New Jersey: The Center for Urban Policy Research, 1990): vii.

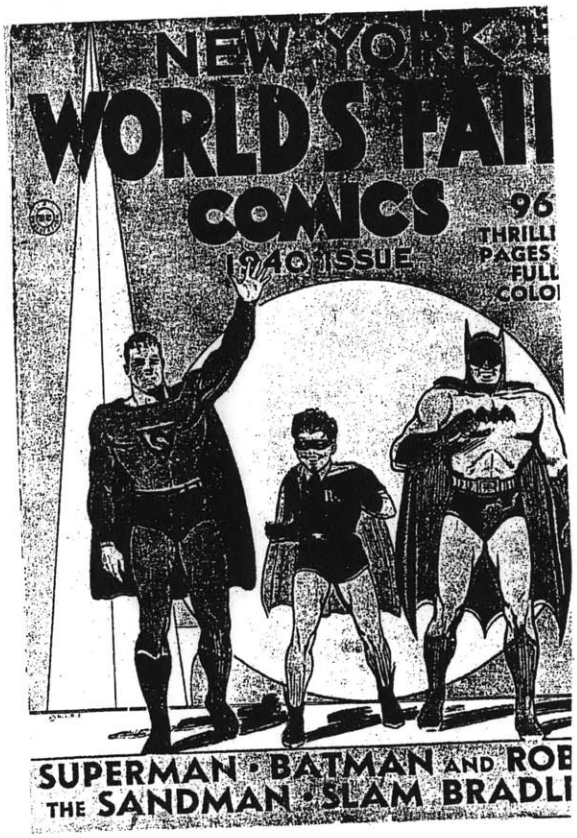


Fig. 72: Superman in the 1939 New York World's Fair poster, reprinted in Larry Zim, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair*. (New York: Main Street Press, 1988): 226.

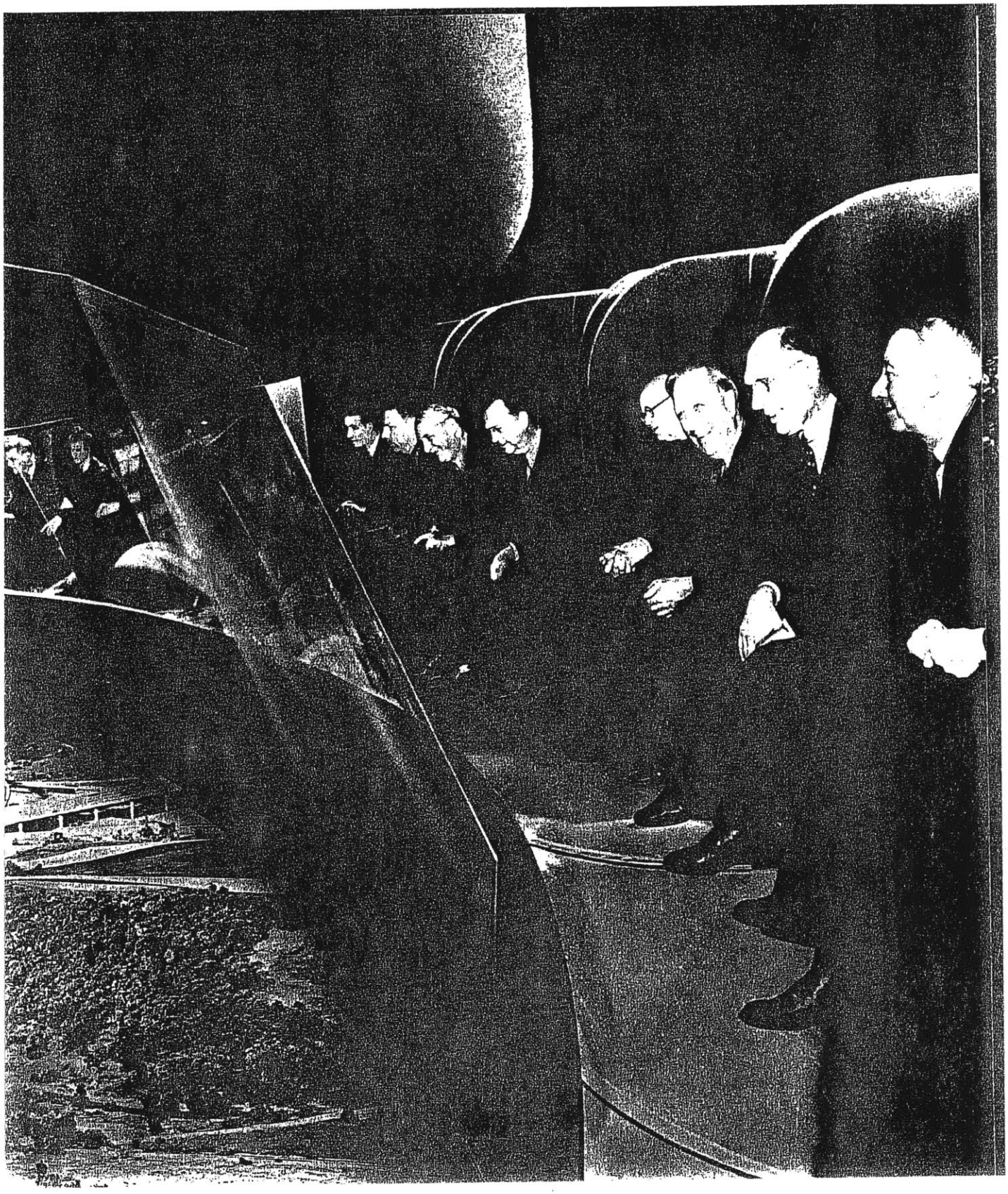


Fig. 73: Norman Bel Geddes replaced the heads of the Futurama's "ordinary" spectators with those of the real power brokers of the New York political scene; archive/National Museum of American History in Washington, D.C.

Selected Bibliography

Applebaum, Stanley. *The New York World's Fair 1939/1940.* New York: Dover Publications, Inc., 1977.

Barthes, Roland. *The Eiffel Tower and Other Mythologies,* trans., Richard Howard. Berkeley: University of California Press, 1979.

Bachelard, Gaston. *Air and Dreams, An Essay on the Imagination of Movement,* trans., Edith R. Farrell and C. Frederick Farrell. Dallas: The Dallas Institute Publications, 1988.

Beard, Charles A, ed., *A Century of Progress.* New York: Harper & Brothers Publishers, 1933.
_____. *Toward Civilization.* London: Longmans, Green, 1930.

Bender, Thomas and Carl E. Schorske, eds., *Budapest and New York, Studies in Metropolitan Transformation: 1870-1930.* New York: Russell Sage Foundation, 1994.

Benjamin, Walter. *Illuminations,* trans. Harry Zohn. New York: Schocken, 1969.

Bel Geddes, Norman. *Horizons.* Boston: Little, Brown, and Company, 1932.
_____. *Magic Motorways.* New York: Random House, 1941.
_____. *Miracle in the Evening.* Garden City, NY: Doubleday, 1960.
_____. "Dreamlining Tomorrow," *Mademoiselle,* March 1944, pp. 149-150.
_____. "The Man of Tomorrow...Today," *Information about New York,* I April 7, 1939, pp. 8-9.
_____. "Modern Design: Its Problems and Their Solution," *Encyclopedia Britanica,* 14th Ed.
_____. "Streamlining," *Atlantic Monthly,* CLIV, November, 1934, pp. 553-563.
_____. "Design for a New Kind of Theatre," *The New York Times Magazine,* Nov. 30, 1947, pp. 24-25.

Berger, John. *Ways of Seeing.* London: Penguin Books, 1972.

Bergson, Henri. *Matter and Memory.* (1896) Trans. W.S. Palmer and N.M. Paul. New York: Zone Books, 1988.

Berman, Marshall. *All that is Solid Melts into Air: The Experience of Modernity.* New York: 1982.

Bilstein, Roger E. *Flight in America 1900-1983: From the Wrights to the Astronauts.* Baltimore: John Hopkins University Press, 1984.

Blumenberg. *The Legitimacy of the Modern Age,* trans., Robert M. Wallace. Cambridge: The MIT Press, 1983.

Boime, Albert. *The Magisterial Gaze, Manifest Destiny and American Landscape Painting c. 1830-1865.* Washington and London: Smithsonian Institution Press, 1991.

Boyer, M. Christine, "The New York Panorama: A Paradoxical View," in Patricia C. Phillips, ed., *City Speculations.* Queens Museum of Art, Princeton Architectural Press, 1996.

Bragdon, Claude. *A Primer of Higher Space.* Rochester: Manas Press, 1913.
_____. *The Frozen Fountain: Being Essays on Architecture and the Art of Design in Space.* New York: 1932.

Burger, Peter. *Theory of the Avant-Garde,* trans., Michael Shaw.

Burlingame, Roger. *Engines of Democracy, Inventions and Society in Mature America.* New York: Charles Scribner's Sons, 1940.

Bush, Donald J. *The Streamlined Decade.* New York: Brazilier, 1975.
_____. "Futurama: World's Fair as Utopia." *Alternative Futures* 2, Fall 1979, pp. 3-20.

Calvino, Italo. *Six Memos for the Next Millennium.* Cambridge, MA: Harvard University Press, 1988.

Carter, Paul A. *The Creation of Tomorrow, Fifty Years of Magazine Science Fiction.* New York: Columbia University Press, 1977.

Chase, W. Parker. *New York, The Wonder City 1932.* New York: Wonder City Publishing Co., 1932.

Cheney, Sheldon. *The New World Architecture.* New York: Longmans, 1930.
Cheney, Sheldon and Martha Candler Cheney. *Art and the Machine, An Account of Industrial Design in 20th-century America.* New York: McGraw-Hill Book Co. Inc., 1936.

Clair, Jean, ed., *The 1920s: Age of the Metropolis.* Exh. Cat. Montreal: The Montreal Museum of Fine Arts, 1991.

Clark, I. F. *The Pattern of Expectation.* New York: Basic Books, 1979.

Coben, Stanley and Lorman Ratner, ed. *The Development of an American Culture.* New York: St. Martin's Press, 1983.

Cogdell, Christina. "The Futurama Recontextualized: Norman Bel Geddes's Eugenic "World of Tomorrow."" *American Quarterly*, Vol. 52, No. 2, June 2000.

Conrads, Ulrich, and Sperlich, Hans G. *The Architecture of Fantasy*. New York: Praeger, 1962.

Corn, Joseph J. *The Winged Gospel: America's Romance with Aviation, 1900-1950*. New York: Oxford University Press, 1983.
Corn, Joseph J. ed. *Imagining Tomorrow: History, Technology, and the American Future*. Cambridge: The MIT Press, 1986.

Crary, Jonathan. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge, MA: The MIT Press, 1990.
_____, "Spectacle, Attention, Counter-Memory." *October* 50, (Fall 1988): 97-107.

D'Alembert, Jean le Rond. *Preliminary Discourse to the Encyclopedia of Diderot*, trans. Richard N. Schwab and Walter E. Rex. New York: 1963.

Les Daniels, *The Complete History: The Life and Times of the Man of Steel*. San Francisco: Chronicle Books, 1998.

Danly, Susan and Leo Marx, eds., *The Railroad in American Art: Representations of Technological Change*. Cambridge, MA: The MIT Press, 1987.

Damisch, Hubert. *Skyline, the Narcissistic City*, trans., John Gold. Stanford, CA: Stanford University Press, 2001.

Davis, Kenneth S. *The Hero, Charles A. Lindbergh and the American Dream*. Garden City, N.Y.: 1959.

Debord, Guy. *The Society of the Spectacle*, trans., Donald Nicholson-Smith. New York: 1990.

Disch, Thomas. *The Dreams Our Staff is Made Of, How Science Fiction Conquered the World*. New York: Touchstone, 1998.

Elderfield, John, Peter Reed, Mary Chan, and Maria Del Carmen Gonzalez, eds., *Modern*starts, *People, Places, Things*. New York: The Museum of New York, 2000.

Fairchild, Sherman, "Aerial Photography, Its Development and Future," *American Academy of Political and Social Science, Aviation*, vol. 131 (May, 1927), pp. 49-55.

Ferkiss, Victor C. *Technological Man, The Myth and the Reality*. New York: 1969.

Ferriss, Hugh. *The Metropolis of Tomorrow*. Princeton: Princeton Architectural Press, 1986. (First published in 1929).
_____, "New York from a Studio Top." *Christian Science Monitor*, Oct. 8, 1923, P. 7.

Foster, Hal, ed., *Vision and Visuality*. Seattle: Bay Press, 1988.

Foucault, Michel. *Discipline and Punish: The Birth of the Prison*, trans., Alan Sheridan. New York: Pantheon, 1979.
_____. *The Order of Things*. New York: Pantheon, 1973.
_____. *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*, ed., Colin Gordon. New York: Pantheon, 1980.

Friedberg, Anne. *Window Shopping, Cinema and the Postmodern*. Berkekey: University of California Press, 1993.

Gold, John R. *The Experience of Modernism: Modern Architects and the Future City 1928-1953*. London: E & FN Spon, 1997.

Gebhard, David, and Harriette Von Breton. *Kem Weber: The Moderne in Southern California 1920 -1941*. Santa Barbara: University of California Press, 1969.

Gelernter, David. *1939: The Lost World of the Fair*. New York: Free Press, 1995.

Goldstein, Laurence. *The Flying Machine and Modern Literature*. Bloomington: Indiana University Press, 1986.

Guggenheim, Harry. *The Seven Skies*. New York: G.P. Putnam's Sons, 1930.

Hambourg, Maria Morris. *The New Vision: Photography Between the World Wars*. New York: The Metropolitan Museum of Art, 1989.

Hare, James H. "Aerial Photography--A New Art," *Flying* (May, 1914).

Harrison, Crockett A. "Making Maps from the Air." *Technology Review*, MIT, December 1930.

Harrison, Helen A. et al., *Dawn of a New Day: The New York World's Fair, 1939-40*. New York: Queens Museum/New York University Press, 1980.

Heller, Stephen. *The 1939 World's Fair: Trylon and Perisphere*. New York: Harry N. Abrams, Inc., 1989.

Heynen, Hilde. *Architecture and Modernity: A Critique.* Cambridge, MA: The MIT Press, 1999.

Holtkamp, Marcella. "A Bit of Philosophy on Flying," *Air Travel News,* III (August 1929), 21-22.

Howells, John Mead. "The Verticality of the Skyscraper." *American Architect,* 134 (December 20, 1928); 787.

Hughes, Thomas. *American Genesis: A Century of Invention and Technological Enthusiasm 1870-1970.* New York: Viking, 1989.

Jay, Martin. *Downcast Eyes, The Denigration of Vision in Twentieth-Century French Thought.* Berkeley: University of California Press, 1993.

Jenks, Chris, ed., *Visual Culture.* London and New York: Routledge, 1995.

Kern, Stephen. *The Culture of Time and Space 1880-1918.* Cambridge, MA: Harvard University Press, 1983.

King, Moses, ed., *King's Views of New York 1886-1915.* New York: Arno, 1974.

Koolhaas, Rem. *Delirious New York, A Retroactive Manifesto for Manhattan.* New York: The Monacelli Press, 1994.

Kouwenhoven, John A. *The Columbia Historical Portrait of New York: An Essay in Graphic History.* New York: Harper & Row, Publishers, 1972.

Krauss, Rosalind. *The Optical Unconscious.* Cambridge: The MIT Press, 1993.
_____, "Antivision." *October* 36 (Spring 1986). pp. 147-154.

Kyle, David. *Pictorial History of Science Fiction.* London: Hamlyn, 1976.

Le Corbusier. *The City of To-morrow and Its Planning,* trans. from the 8th French edition of *Urbanisme,* intro. by Frederick Etchells. New York: Payson & Clark Ltd. 1929b
_____. *Aircraft.* ("L'avion accuse") New York: The Studio Publications Inc., 1935.
_____, *Towards a New Architecture,* trans. from the 13th French ed., with an intro. by Frederick Etchells. New York: Payson & Clarke, 1927.

Leich, Jean Ferriss. *Architectural Visions: The Drawings of Hugh Ferriss.* New York: Whitney Library of Design, 1980.

Levin, David M. *The Opening of Vision: Nihilism and the Postmodern Situation*. New York: 1988.
_____, ed., *Modernity and the Hegemony of Vision*. Berkeley: 1993.

Levine, Lawrence W. "American Culture and the Great Depression." *The Yale Review* 74, 1985.

Leary, William M., ed., *Aviation's Golden Age, Portraits from the 1920s and 1930s*. Iowa City: University of Iowa Press, 1989.

Mansfield, Howard. *Cosmopolis, Yesterday's Cities of the Future*. New Jersey: The Center for Urban Policy Research, 1990.

Manuel, Frank E. and Fritzie P. Manuel, *Utopian Thought in the Western World*. Cambridge, MA: The Belknap Press of Harvard University Press, 1979.

Marchand, Roland. "The Designers Go the Fair II: Norman Bel Geddes, The General Motor's "Futurama," and the Visit to the Factory Transformed." *Design Issues* 8, Spring 1992: 23-40.
_____. *Advertising the American Dream: Making Way for Modernity, 1920-1940*. Berkeley: University of California Press, 1986.

Martin, Rupert, ed., *The View From Above: 125 Years of Aerial Photography*. London: The Photographers' Gallery, 1983.

Marx, Leo. *The Machine in the Garden: Technology and the Pastoral Ideal in America*. New York: Oxford University Press, 1964.
_____. *The Pilot and the Passenger: Essays on Literature, Technology, and Culture in the United States*. New York: Oxford University Press, 1988.

Meikle, Jeffrey L. *Twentieth Century Limited: Industrial Design im America, 1925-1939*. Philadelphia: Temple University Press, 1979.

Moholy-Nagy, László, *The New Vision* (1928). New York: George Wittenborn, Inc., 1947.
_____, *Vision in Motion*. Chicago: Paul Theobald, 1947.

Newhall, Beaumont. *Airborne Camera, The World from the Air and Outer Space*. New York: Hastings House, 1969.

Nietzsche, Friedrich Wilhelm. *Beyond Good and Evil*, trans., Helen Zimmern, 2nd ed. Edinburgh: T. N. Foulis, 1909.
_____, *Thus Spake Zarathustra: A Book for All and None*, trans., Thomas Commom, 2nd ed. NY: Macmillan, 1911.

Nisbet, Robert. *History of the Idea of Progress*. New York: Basic Books, Inc., 1980.

Nye, David E. *American Technological Sublime*. Cambridge, MA: The MIT Press, 1996.

Ogburn, William Fielding. *The Social Effects of Aviation*. Boston: Houghton Mifflin, 1946.

Onosko, Tim. *Wasn't the Future Wonderful*. New York: Dutton, 1979.

Parrington, Vernon Louis, Jr. *American Dreams, A Study of American Utopias*. New York: Russell & Russell, 1947.

Pells, Richard H. *Radical Visions and American Dreams, Cultural and Social Thought in the Depression Years*. New York: Harper and Row, Publishers, 1973.

Plummer, Kathleen Church. "The Streamlined Moderne," *Art in America*, vol. 62, no. 1 (Jan.-Feb. 1974).

Polak, Frederick. *The Image of the Future*, Vol. 1-2. New York: Oceana Publications, 1961.

Prendergast, Christopher. *Paris and the Nineteenth Century*. Oxford, UK and Cambridge, MA: Blackwell, 1992.

Pulos, Arthur J. *The American Design Adventure, 1940-1975*. Cambridge: The MIT Press, 1988.

_____. *American Design Ethic: A History of Industrial Design to 1940*. Cambridge: The MIT Press, 1983.

Rodman, Selden, ed., *The Poetry of Flight: An Anthology*. Miami: Royale House, 1941.

Roemer, Kenneth M., ed., *America as Utopia*. New York: Burt Franklin and Co., 1981.

Roseberry, C. R. *The Challenging Skies, the Colorful Story of Aviation's Most Exciting Years, 1919-1939*. Garden City, N.Y., 1966.

Rosenblum, Robert. *Remembering the Future, The New York World's Fair from 1939 to 1964*. New York: Rizzoli, 1989.

Rydell, Robert W. *World of Fairs: The Century-of-Progress Expositions*. Chicago and London: The University of Chicago Press, 1993.

Roberts, Jennifer Davis. *Norman Bel Geddes: An Exhibition of Theatrical and Industrial Designs*. Ex. cat., Humanities Research Center, The University of Texas at Austin, 1979.

Schaer, Roland, Gregory Claeys, and Lyman Tower Sargent. *Utopia, The Search for the Ideal Society in the Western World*. New York and Oxford: The New York Public Library/Oxford University Press, 2000.

Scharf, Aaron. *Art and Photography*. Middlesex, England: Penguin Books Ltd., 1968.

Schivelbusch, Wolfgang. *The Railway Journey: The Industrialization of Time and space in the 19th Century*. Berkeley: 1986.

Schumacher, John A. *Human Posture: The Nature of Inquiry*. Albany: State University of New York Press, 1989.

Schwartz, Barry. *Vertical Classification: A Study in Structuralism and the Sociology of Knowledge*. Chicago and London: The University of Chicago Press, 1981.

Segal, Howard. *Technological Utopianism in American Culture*. Chicago: University of Chicago Press, 1985.

Sekula, Allan, "The Instrumental Image: Steichen at War," in *Photography Against the Grain: Essays and Photo Works 1973-1983*. Halifax: The Press of the Nova Scotia College of Art and Design, 1984.

Shanor, Rebecca Read. *The City That Never Was: Two Hundred Years of Fantastic and Fascinating Plans That Might Have Changed the Face of New York City*. New York: Viking, 1988.

Stern, Robert, Gregory Gilmartin, and Thomas Mellins. *New York 1930*. New York: Rizzoli, 1987.

Stott, William. *Documentary Expression and Thirties America*. New York: Oxford University Press, 1973.

Susman, Warren, ed., *Culture and Commitment, 1929-1945*. New York: Pantheon, 1973.
_____, *Culture as History: The Transformation of American Society in the Twentieth Century*. New York: Pantheon, 1984.
_____, "The Thirties," in *The Development of an American Culture*.
_____ "Ritual Fairs," *Chicago History* 12, no. 3 (Fall 1983).

Sutcliffe, Anthony, ed., *Metropolis 1890-1940*. Chicago: The University of Chicago Press, 1984.

Tallmadge, Thomas E. *The Story of Architecture in America.* New York: W. W. Norton & Company, Inc., 1927.

Tashjian, Dickran. *The Machine Age in America, 1918-1941.* New York: The Brooklyn Museum and Harry N. Abrams, 1986.

Tod, Ian, and Michael Wheeler. *Utopia: An Illustrated History.* New York: Harmony Books, 1978.

Thomsen, Christian W. *Visionary Architecture, From Babylon to Virtual Reality.* Munich and New York: Prestel-Verlag, 1994.

Tyng, Ed. *Making a World's Fair.* New York: Vantage Press, 1958.

Upton, Bell. *Architecture in the United States.* Oxford: Oxford University Press, 1998.

Virilio, Paul. *Speed and Politics: An Essay on Dromology,* trans., Mark Polizzotti. New York: Semiotext(e), 1986.
_____. *War and Cinema: The Logistics of Perception,* trans., Patrick Camiller. London and New York: Verso, 1989.
_____ *Open Sky,* trans., Julie Rose. London: Verso, 1997.

Ward, John William. "The Meaning of Lindbergh's Flight," in *Red, White, and Blue: Men, Books, and Ideas in American Culture.* New York: Oxford University Press, 1969.

Weingartner, Fannia, ed., *Streamlining America.* Dearborn, Michigan: c. 1986.

Welchman, John, "Here There and Otherwise," *Artforum* 27, no. 1 (September 1988). See p. 18.

Wells, H. G. "The Advent of the Flying Man--an Inevitable Occurrence," *Pall Mall Gazette,* 8 December 1893.
_____. *The War in the Air.* London: 1908.
_____. *The Famous Short Stories of H. G. Wells.* New York: 1937
_____. *The Shape of Things to Come.* New York: Macmillan, 1933.
_____. *The Way the World is Going: Guesses and Forecasts of the Year Ahead.* New York: Doubleday, Doran and Co., 1929
_____. *A Year of Prophesying.* New York: Macmillan, 1925

White, Frank. *The Overview Effect: Space Exploration and Human Evolution.* Reston, Virginia: American Institute of Aeronautics and Astronautics, Inc.,1998.

Wichert, Fritz. "Airship Travel and Architecture," in *Frankfurter Zeitung*, 21 March 1909; republished in *Industriekultur, Peter Behrens and the AEG, 1907-1914* , by Tilmann Buddensieg, trans., Iain Boyd Whyte. Cambridge, MA: The MIT Press, 1984 (originally published under the title *Industriekultur und die AEG*, 1907-1914 by Gebr. Mann Verlag, Berlin 1979).

Willis, Carol. "The Titan City." *Skyline*, October 1982, pp. 26-27.

Wohl, Robert. *A Passion for Wings, Aviation and the Western Imagination 1908-1918*. New Haven and London: Yale University Press, 1994.

Young, William H. "Images of Order: American Comic Strips During the Depression, 1929-1938," (unpublished doctoral dissertation, Emory University, 1969).

Zim, Larry, Mel Lerner and Herbert Rolfes. *The World of Tomorrow: The 1939 New York World's Fair*. New York: Main Street Press, 1988.