

# **A NEW LOOK AT CIVIC DESIGN: Park Systems in America**

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PAR

**Matthew SKJONSBERG**

acceptée sur proposition du jury:

Prof. B. Marchand, président du jury  
Dr E. Cogato Lanza, directrice de thèse  
Prof. A. Geuze, rapporteur  
Dr S. Marot, rapporteur  
Prof. L. Ortelli, rapporteur



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*A NEW LOOK AT  
CIVIC DESIGN*



## *Abstract*

*A New Look at Civic Design* reflects on the nature of the various crises facing the very idea of democracy today, explicitly in relation to climate change – namely mass extinctions, water scarcity and overabundance, and in general widespread and increasing ecological, social, and economic inequity – characteristics of our era, known now as the Anthropocene. The research demonstrates that these crises share anthropocentric materialism as a root cause, as instrumentalized by military industrialism and extractive industries, and asks:

*How would cities look if water had rights? How would regions be organized if soil had rights?  
How does a nation change if political boundaries are made congruent with ecological boundaries?  
How does the world look if we create a 'charter of elements'?*

Taking as a point of entry the ‘new’ Charter of Athens – involving as it does making policy recommendations regarding the regional scale relations of rural and urban settlements, and the various infrastructures relating these – the dissertation is framed within a paradigm of *nonlinearity*, emphasizing *reversibility* and *optionality*. In turn, what fields of knowledge are best suited to inform nonlinear design practice? The dissertation is developed as a response to this question, resulting in a proposal.

The central topic of the research is about form with a *civic design* development narrative, through *elicitive modeling* (*form determinants* established by *analogy* and *analysis*) and the design of form with which to relate rural and urban districts now – in light of ongoing industrialization and rapid urbanization. The research adopts a hybrid approach that can be characterized as ‘radical contextualism’ – identifying a ‘new school of nonlinear design’ through historic figures, discourses and events, inventorying the processes involved in both positive and negative examples, involving pedagogical traditions, disciplinary heuristics and interdisciplinary interactions – with the aim of evoking *positive nonlinearity* through practical design methods. Civic designer’s innovative *park systems* provide an important precedent of *positive nonlinearity* in practice, illustrating how a ‘new school of nonlinear design’ contributes to a design culture for the expansion of ‘living rights’. The original contribution made by the dissertation to this research theme is to reveal *park systems* as the *civic designer’s* innovative formal device – in pedagogy, policy and practice – as evidenced by the archival materials revealed through first-hand research.

*A New Look at Civic Design* proposes a theoretical alternative to urban design, based on the interrelated concepts of *optionality*, *reversibility* and *life cycles*. The thesis traces a new tradition in design, while involving some familiar figures, where references – including pedagogues Schurtze, Addams and Montessori as well as designers Olmsted, Geddes, Wright – are associated with the use of the concepts, the heuristics, and the means of design and creation from other disciplinary spheres – for example music, with the notion of counterpoint – arriving at a critical appreciation of the neglected practice of *civic design*, which this dissertation advocates as an important social and ecological counterpoint to urban design, its more explicitly commercial disciplinary successor. The framing of this new tradition represents an attempt to overcome the acknowledged destructive tendencies of linearity with the means of design and pedagogy – the disciplinary tradition of an interdisciplinary ambition.

**KEYWORDS:** *civic design, park systems, landscape infrastructure, rural urban dynamics, design analogy, chronobiology, Broadacre City, agricultural urbanism, pragmatism, radical empiricism, ecocide law, ecological planning, pedagogy, nature study*

## *Abstrait*

*A New Look at Civic Design* reflète la nature des différentes crises auxquelles est confrontée l'idée même de démocratie aujourd'hui, en relation directe avec le changement climatique – extinctions de masse, pénurie et surabondance d'eau, croissance généralisée des inégalités écologiques, sociales et économiques – caractéristiques de notre époque, appelée l'Anthropocène. La recherche part de l'hypothèse que ces crises ont dans le matérialisme anthropocentrique une même cause fondamentale, telle qu'instrumentalisée par l'industrie militaire et les industries extractives, et formule les questions suivantes:

*À quoi ressembleraient les villes si l'eau avait des droits? Comment les régions seraient-elles organisées si le sol avait des droits? Comment une nation changerait-elle si les frontières politiques étaient en harmonie avec les frontières écologiques? À quoi ressemblerait le monde si nous créions une «charte des éléments»?*

Prenant comme point d'entrée la «nouvelle» Charte d'Athènes - impliquant des recommandations politiques concernant les relations, à l'échelle régionale, des districts ruraux et urbains, et les diverses infrastructures les reliant - la thèse se propose de théoriser la non-linéarité comme paradigme théorique, en insistant sur les concepts de réversibilité et d'optionalité. Quels domaines de connaissances sont les mieux adaptés pour informer la pratique architecturale non linéaire? La thèse se développe en réponse à cette question, aboutissant à une proposition.

Le thème central de la recherche porte sur la « forme » avec le *civic design* comme récit, à travers la modélisation élicitive (déterminants de forme établis par analogie et analyse) et la conception de formes destinées à relier établissement urbains et ruraux dans un contexte de développement industriel et d'urbanisation rapide. La recherche adopte une approche hybride qui peut être qualifiée de «contextualisme radical» - identifiant une «nouvelle école de projet non linéaire» à travers des figures historiques, des discours et des événements, inventariant les processus impliqués dans des exemples positifs et négatifs, impliquant des traditions pédagogiques, des heuristiques disciplinaires et des interactions interdisciplinaires. – dans le but de dresser une non-linéarité positive à travers des méthodes de projet spécifiques. Les *park systems* constituent un précédent décisif de non-linéarité positive dans la pratique du projet, illustrant comment une "nouvelle école de projet non linéaire" contribue à une culture du projet qui favorise l'expansion des "droits à la vie". La contribution originale apportée par la thèse à ce thème de recherche, consiste à révéler les « systèmes de parcs » comme dispositif formel innovant du *civic design* - dans la pédagogie, la pratique et les politiques - comme en témoignent les documents d'archives inédits, révélés par la recherche de première main.

*A New Look at Civic Design* propose une alternative théorique à l'urban design, basée sur les concepts interdépendants d'optionnalité, de réversibilité et de cycles de vie. La thèse retrace une nouvelle tradition du projet, incarnée par des personnalités connues, et associe à ces références - dont les pédagogues Schurtze, Addams et Montessori ainsi que les concepteurs Olmsted, Geddes, Wright - l'usage de concepts, heuristiques et moyens de conception et création d'autres sphères disciplinaires - par exemple la musique, avec la notion de contrepoint. La thèse débouche sur une appréciation critique d'une discipline négligée, le *civic design*, que cette thèse réhabilite comme un contrepoint social et écologique important à l'urban design, son plus commercial « descendant » disciplinaire. La reconstruction de cette « nouvelle tradition » constitue une tentative de surmonter les tendances destructrices reconnues de la linéarité autant dans la sphère de la conception que de la pédagogie : la tradition disciplinaire d'une ambition interdisciplinaire.

**MOTS-CLÉS:** *civic design, systèmes de parcs, infrastructure paysagère, dynamiques urbaines rurales, analogie de conception, chronobiologie, ville de Broadacre, urbanisme agricole, pragmatisme, empirisme radical, politique fondée sur des données probantes, droit de l'écocide, planification écologique, pédagogie, étude de la nature*

*A NEW LOOK AT CIVIC DESIGN: Park Systems in America*  
On Nonlinearity, Periodicity and Rural Urban Dynamics

Matthew Skjonsberg

*"We are the children of our environment."* Shinichi Suzuki

Table of Contents

PREFACE – On Living Rights  
OVERVIEW – Research Themes, Structure, and Initiatives

**0 INTRODUCTION:** Protagonists in Design and Pedagogy

**1 DESIGN ANALOGY**

*How To Perceive Nonlinear: From Resources to Cycles*

- 1.1 PERIODICITY: Fundamental Polarities from Science to Art
- 1.2 VIA NEGATIVA: Rural Urban Dynamics
- 1.3 THE GRAND NARRATIVE: From Individual to Community

**2 CIVIC DESIGN**

*How To Design Nonlinear: From Metrics to Heuristics*

- 2.1 PUBLIC PARKS (1750-1900)
- 2.2 PARK SYSTEMS (1900-1950)
- 2.3 CIVIC DESIGN: Future Primitive

**3 THE CHARTER OF ELEMENTS**

*How To Cultivate Nonlinear: From Communities to Regions*

- 3.1 THE CHARTER OF ELEMENTS: Climate Change and Democracy
- 3.2 THE METRICS OF UTOPIA: The Vital Budget

APPENDICES

**A NEW LOOK AT CIVIC DESIGN: Park Systems in America**  
On Nonlinearity, Periodicity and Rural Urban Dynamics

Table of Contents (elaborated)

ii

|  |             |
|--|-------------|
| A. PREFACE - On Living Rights              |             |
| <i>i. From Linearity to Nonlinearity</i>   | <i>vii</i>  |
| <i>ii. From Determinism to Optionality</i> | <i>x</i>    |
| B. OVERVIEW                                |             |
| <i>iii. Research Themes</i>                | <i>xii</i>  |
| <i>iv. Research Structure</i>              | <i>xiii</i> |
| <i>v. Research Initiatives</i>             | <i>xiii</i> |

**0 INTRODUCTION: Protagonists in Design and Pedagogy**

|  |   |  |
|--|---|--|
| 0.1  | A Study of Influence: Individuals and Movements           |  |
| <i>i. Fields of Relations</i>  | <i>1</i>  |  |
| <i>ii. The Settlement House Movement: Residence, Research and Reform</i> | <i>2</i>  |  |
| <i>iii. Common Ground and Disciplinary Polemics</i>                      | <i>5</i>  |  |
| 0.2  | Coincidentia Oppitorum: The Pedagogical Legacy of Dualism |  |
| <i>i. Early Rural Urban Polemics</i>                                     | <i>9</i>  |  |
| <i>ii. The Legacy of Dualism: Polemic and Rhetoric</i>                   | <i>10</i>   |  |
| <i>iii. Contemporary Polemics</i>  | <i>13</i>   |  |
| <i>iv. Beyond Rationality: The Nonlinear Paradigm</i>                    | <i>17</i>   |  |

**1 DESIGN ANALOGY**

*How To Perceive Nonlinear: From Resources to Cycles*

|   |   |  |
|---|---|--|
| <b>1.1 PERIODICITY: Fundamental Polarities from Science to Art</b>                |   |  |
| 1.1.1   | Two Way Systems - Analogy and Polemicism in Science and Art |  |
| <i>i. Introduction</i>  | <i>19</i>   |  |
| <i>ii. Blake (1757–1827) vs. Newton (1643-1727)</i>                               | <i>20</i>   |  |
| <i>iii. Goethe (1749–1832) vs. Newton (1643-1727)</i>                             | <i>25</i>   |  |
| <i>iv. Supersymmetry vs. E8 Pattern</i>   | <i>30</i>   |  |
| <i>v. A Two-Way Cosmology: Walter Russell (1871-1963) vs. Newton (and Kepler)</i> | <i>32</i>   |  |
| <i>vi. Two Hans Jenny's</i>   | <i>40</i>   |  |
| <i>vii. The Limits of Polemicism – From Systems Theory to Formal Systems</i>      | <i>48</i>   |  |
| <i>viii. Conclusion</i>   | <i>55</i>   |  |
| 1.1.2   | The Biological Analogy – On the Animation of the Inorganic  |  |
| <i>i. Introduction</i>  | <i>57</i>   |  |
| <i>ii. The Living City: An Alternative to Urbanism</i>                            | <i>61</i>   |  |
| <i>iii. Origins and Elaboration</i>   | <i>62</i>   |  |
| <i>iv. Critical Reception and Contemporary Interpretation</i>                     | <i>70</i>   |  |
| <i>v. To Wake Leviathan</i>   | <i>76</i>   |  |
| <i>vi. The Nomad and The Care Dweller</i>   | <i>80</i>   |  |
| <i>vii. Conclusion</i>  | <i>85</i>   |  |

|  |  |     |
|--|--|-----|
| 1.1.3  | The Musical Analogy – Contrapuntal Thinking                            |     |
| <i>i.</i>  | <i>Introduction</i>  | 87  |
| <i>ii.</i>   | <i>Harnessing Polemics</i>   | 88  |
| <i>iii.</i>  | <i>Second Nature</i>   | 90  |
| <i>iv.</i>   | <i>The Origins of the Musical Analogy</i>                              | 92  |
| <i>v.</i>  | <i>How to Think Contrapuntally</i>                                     | 93  |
| <i>vi.</i>   | <i>Contrapuntal Landscapes</i>   | 96  |
| <i>vii.</i>  | <i>Conclusion</i>  | 101 |
| <b>1.2 VIA NEGATIVA: Rural Urban Dynamics</b>                |  |     |
| 1.2.1  | Via Negativa – Designing By Absences                                   |     |
| <i>i.</i>  | <i>Introduction</i>  | 104 |
| <i>ii.</i>   | <i>The Theological Origins of Via Negativa</i>                         | 105 |
| <i>iii.</i>  | <i>Art as Art</i>  | 106 |
| <i>iv.</i>   | <i>First Do No Harm</i>  | 110 |
| <i>v.</i>  | <i>Via Negativa in Architecture</i>                                    | 114 |
| <i>vi.</i>   | <i>The Negation That Is Affirmation</i>                                | 119 |
| <i>vii.</i>  | <i>Conclusion</i>  | 120 |
| 1.2.2  | Utopia – The Evolutionary Nature of Genius Loci                        |     |
| <i>i.</i>  | <i>Introduction</i>  | 122 |
| <i>ii.</i>   | <i>The Legacy of Genius</i>  | 122 |
| <i>iii.</i>  | <i>The Legacy of Utopia</i>  | 124 |
| <i>iv.</i>   | <i>The Idea of Genius Loci</i>   | 125 |
| <i>v.</i>  | <i>Conclusion</i>  | 129 |
| 1.2.3  | Where Not to Build – Via Negativa and Utopia                           |     |
| <i>i.</i>  | <i>Introduction</i>  | 130 |
| <i>ii.</i>   | <i>Lewis's Landscape Suitability Method</i>                            | 131 |
| <i>iii.</i>  | <i>Inventing Regional Design</i>                                       | 133 |
| <i>iv.</i>   | <i>Circle Cities and Park Systems</i>                                  | 138 |
| <b>1.3 THE GRAND NARRATIVE: From Individual to Community</b> |  |     |
| 1.3.1  | Grand Narratives – The Polemics of ‘Manifest Destiny’ and ‘Hinterland’ |     |
| <i>i.</i>  | <i>Introduction</i>  | 143 |
| <i>ii.</i>   | <i>Manifest Destiny</i>  | 145 |
| <i>iii.</i>  | <i>The Origins of Hinterland</i>                                       | 148 |
| 1.3.2  | Nonlinear Narrative – Analogy, Proportion, and Heuristics              |     |
| <i>i.</i>  | <i>Introduction</i>  | 152 |
| <i>ii.</i>   | <i>Narrative as Theory</i>   | 153 |
| <i>iii.</i>  | <i>Levi-Strauss's Narrative Theory – Binary Opposition</i>             | 155 |
| <i>iv.</i>   | <i>From Nature to Culture and Back Again</i>                           | 159 |
| <i>v.</i>  | <i>From Dialectics to Dialogics</i>                                    | 160 |
| 1.3.3  | Do It Yourself – From Individual Sovereignty to Civic Design           |     |
| <i>i.</i>  | <i>Evolution of the Textile Block</i>                                  | 162 |
| <i>ii.</i>   | <i>Community Making</i>  | 164 |
| <i>iii.</i>  | <i>From Parks to Park Systems</i>                                      | 165 |
| <i>iv.</i>   | <i>Little Papers, Little Forums</i>                                    | 166 |

## **2 CIVIC DESIGN**

*How to Design Nonlinear: From Metrics to Heuristics*

### **2.1 PUBLIC PARKS (1750-1900)**

|   |     |
|---|-----|
| <i>i. Introduction</i>  | 183 |
| <i>ii. Ancient Practices and Formal Conventions</i>                                     | 183 |
| <i>iii. Anticipating Park Systems: 1750-1800 – from Private Gardens to Public Parks</i> |     |
| 1713-80 – Bridgeman and Vanbrugh's Stone Landscape Gardens                              | 196 |
| 1778 – Goethe and August's Park an der Ilm, Weimar                                      | 200 |
| 1789 – Repton's Ferney Hall, West Midlands  | 205 |
| <i>iv. The Invention of Public Parks (1800-1900)</i>                                    |     |
| 1806 – Nash and Fordyce's Regent Street   | 218 |
| 1812 – Telford's Bonar Bridge, Highlands  | 226 |
| 1829 – Loudon's London  | 228 |
| 1847 – Paxton's Birkenhead Park, Liverpool  | 231 |
| 1850 – Chicago's Park System  | 236 |
| 1853 – Davis's Llewellyn Park   | 248 |
| 1860 – Olmsted and Vaux's New York Park System  | 253 |
| 1869 – Frederick Law Olmsted's Park Systems   | 256 |
| 1898 – Ebenezer Howard's Chicago and the invention of the 'Garden City'                 | 263 |

### **2.2 PARK SYSTEMS (1900-1950)**

|  |     |
|--|-----|
| <i>i. Introduction</i>   | 267 |
| 1900 – Los Angeles's Bicycle Highway                                 | 269 |
| 1902 – Olmsted and Burnham's Washington DC Park System               | 272 |
| 1903 – Jensen and Perkins' Chicago Park Systems                      | 275 |
| 1904 – Crawford's American Park Systems                              | 281 |
| 1907 – The Kessler's Park System for Cincinnati                      | 284 |
| 1909 – Patrick Geddes and Civic Design: the First School of Planning | 298 |
| 1909 – Nolen's Wisconsin Parks                                       | 303 |
| 1916 – National Conference of City Planning                          | 325 |
| 1928 – Olmsted's Los Angeles   | 334 |
| 1942 – Wright's Lloyd Jones Valley                                   | 338 |

### **2.3 CIVIC DESIGN**

|   |     |
|---|-----|
| <i>i. Introduction</i>  | 357 |
| <i>ii. The Legacy of Civic Design</i>                             | 359 |
| <i>iii. Founding the Discipline</i>                               | 360 |
| <i>iv. Civic Design and Monumentality</i>                         | 361 |
| <i>v. Urban Design vs. Civic Design</i>                           | 365 |
| <i>vi. The Civic Design Legacy in Olmsted, Geddes, and Wright</i> | 373 |
| 1962 – Lloyd Wright's Corridors                                   | 382 |
| 1963 – Lewis's Corridors  | 399 |

### **3 THE CHARTER OF ELEMENTS**

*How to Cultivate Nonlinear: From Communities to Regions*

#### **3.1 THE CHARTER OF ELEMENTS: Climate Change and Democracy**

|   |     |
|---|-----|
| <i>i. Nature Patterns</i>                     | 407 |
| <i>ii. Political Time and Geological Time</i> | 421 |
| <i>iii. Genius and Mobocracy</i>              | 423 |
| <i>iv. Risks: General and Particular</i>      | 426 |
| <i>v. The Big Picture</i>                     | 428 |
| <i>vi. Questions</i>                          | 430 |

#### **3.2 THE METRICS OF UTOPIA: Optionality, Aesthetics and Synoptic Utopia**

|                                      |     |
|--------------------------------------|-----|
| <i>i. Utopian Legacies</i>           | 432 |
| <i>ii. Synoptic Vision</i>           | 436 |
| <i>iii. Vital Budget</i>             | 437 |
| <i>iv. From Metric to Heuristics</i> | 439 |
| <i>v. Aesthetics of Utopia</i>       | 442 |

---

### **APPENDICES**

|                         |     |
|-------------------------|-----|
| <i>Acknowledgements</i> | 447 |
| <i>Sources</i>          | 448 |
| <i>Bibliography</i>     | 449 |
| <i>Curriculum Vitae</i> | 475 |



## A. PREFACE – On Living Rights

*A New Look at Civic Design* began as a sustained reflection on the nature of the various crises facing the very idea of democracy today, explicitly in relation to climate change – namely mass extinctions, water scarcity and overabundance, and in general widespread and increasing ecological, social, and economic inequity – characteristics of our era, known now as the *Anthropocene*. The root of all of these deeply interrelated crises is arguably resource displacement and its attendant war undertaken for profit by an international lobby that U.S. President Dwight Eisenhower identified in his farewell address on January 17, 1961 as ‘the military industrial complex.<sup>1</sup> As I write this, an estimated 50,000 refugees from such war in North Africa are arriving every day on the shores of Greek islands – a nation that has itself been radically transformed in recent years through financial instruments and other coercive methods familiar to South American, Asian, and African countries since the 1950’s.<sup>2</sup> The logic appears to follow that outlined so effectively by Saskia Sassen, whereby financial instruments and trade agreements are crafted and imposed (often without any meaningful political process) so as to secure exclusive access to ‘territories’ in such a way as to entirely exclude any parallel or subsequent occupation of this land – prompting the unimaginable exodus of life as is suggested by the daily Greek influx of 50,000 human refugees noted above, and resulting in what Sassen describes as ‘holes in the tissue of the biosphere.<sup>3</sup>

### i. From Linearity to Nonlinearity

It turns out that the disruptive effects of these ‘holes in the biosphere’ are nonlinear – a term that generally refers to a situation that has a disproportionate cause and effect. Nonlinearity is a term that consistently proved to be of central relevance as I prepared the dissertation, as it is fundamental to a contemporary understanding of complex phenomena - from quantum mechanics to social dynamics. In the sciences a nonlinear system, in contrast to a linear system, is a system that does not satisfy the superposition principle – meaning that the output of a nonlinear system is not directly proportional to the input.<sup>4</sup> Contextual relations are by their very nature nonlinear: the Greek term for proportion is

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<sup>1</sup> James Ledbetter, “50 Years of the ‘Military-Industrial Complex,’” New York Times, January 25, 2011, n. Eisenhower biographer Geoffrey Perret wrote that Eisenhower “originally intended to include Congress in this indictment and deliver a blast at the ‘military-industrial-congressional complex.’ At the last minute, he struck out ‘congressional.’” By contrast, historian Douglas Brinkley tells us that the phrase was originally “military-industrial-scientific complex,” but that Eisenhower’s science advisor James Killian advised the president to change it.

<sup>2</sup> John Perkins, *Confessions of an Economic Hit Man* (Oakland, CA: Berrett-Koehler Publishers, 2003), n. Perkins outlines the existing world order paradigm, and reports on his recruitment by the CIA as a student at Yale for a CIA-front organization by whom he was subsequently trained to be an ‘economic hit man’ – or ‘jackal’ in insider terminology. Likewise CIA agents are referred to as ‘spooks’, and military agents as ‘fixers’.

<sup>3</sup> Saskia Sassen, *Expulsions: Brutality and Complexity in the Global Economy* (Cambridge, Massachusetts: Belknap Press, 2014), 150.

<sup>4</sup> Chun Wa Wong, *Introduction to Mathematical Physics, Methods and Concepts* (CTI Reviews, 2016), 37.

*analogos*, from which we derive ‘analogy’ – seeing relations in context, a subject that is developed in the first section of the dissertation (*1 Design Analogy*). In the case of Sassen’s ‘holes in the biosphere’, she identifies a systematic financial paradigm wherein people, animals, plants, soil, water and other subterranean materials are all vacated from a given area, and the site subsequently serves as a dump for hazardous materials – with any number of unattributed effects resulting, whether in relation to the population of human exiles now scattered across the earth (often resettling in less secure and entirely unfamiliar surroundings), or in relation to the depletion of groundwater and arable land, not to mention species extinction – the long term nonlinear outcomes of which are not at all well understood.

In other cases nonlinearity can be expressed in what we experience as positive ways – as for example the arrival from Germany of the idea of *kindergarten* in Wisconsin, its subsequent informal, viral proliferation, and its eventual culmination in contributing, along with other progressive initiatives, to a variety of nonlinear social benefits. Frederich Froebel (1782-1852) was a German pedagogue, a student of Swiss educational reformer Johann Pestalozzi (1746-1827),<sup>5</sup> who created the concept of ‘kindergarten’ and effectively established educational standards that laid the foundation for progressive modern education – that is, an education based on the recognition that children have unique needs and capabilities.<sup>6</sup> In 1855, some three years after Froebel’s death, his long-time associate Margaretha Schurze (nee: Meyer – who had previously established the first kindergarten in England in 1851) established the first kindergarten in the United States in Watertown, Wisconsin<sup>7</sup> – some 8 miles from Ixonia, Wisconsin, where Frank Lloyd Wright’s family had settled in 1845 (relocating west to Spring Green, Wisconsin in March 1857).<sup>8</sup> Froebel had also developed educational toys known as Froebel Gifts, to which Wright was introduced by his mother,<sup>9</sup> and which were to exert a fundamentally nonlinear and life-long influence of their own on the architect.<sup>10</sup> For the time being it is sufficient to point out that the educational methods advocated by Froebel found broad support among progressives in Europe and America, and were resonant with collective ambitions for woman’s rights at that moment in history. We can see how women were not only motivated to obtain rights for

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<sup>5</sup> Johann Heinrich Pestalozzi, *The Education of Man: Aphorisms* (New York, 1951) n. aphorisms vis heuristics; Pestalozzi is related to a progressive Swiss pedagogical legacy of direct relevance but which is beyond the scope of this dissertation – for a good overview see: Arthur Brühlmeier, Head, Heart and Hand: Education in the Spirit of Pestalozzi (Cambridge: Sophia Books in association with Pestalozzi World, 2010).

<sup>6</sup> Judit Horvath, *Educating Young Children Through Natural Water: How to Use Coastlines, Rivers and Lakes to Promote Learning and Development* (Routledge, 2015), 113.

<sup>7</sup> Nina Catharine Vandewalker, *The Kindergarten in American Education* (New York: Macmillan, 1908), 12–36; as cited in Edgar Kaufmann, *9 Commentaries on Frank Lloyd Wright* (New York, New York: The Architectural History Foundation, 1989), 7-18.

<sup>8</sup> Kaufmann, *9 Commentaries on Frank Lloyd Wright*, 2.

<sup>9</sup> Grant Carpenter Manson, *Frank Lloyd Wright to 1910: The First Golden Age* (New York: Van Nostrand Reinhold, 1958), 5–6, Anna Lloyd Wright obtained these at the Philadelphia Bi-Centennial Expo in 1876, when her son was 9 years old.

<sup>10</sup> Ibid., 3–4, n. Notably including Wright’s use of the grid in architectural design, and his method of design involving what he alternately described as ‘conventionalization’ or ‘abstraction’, subjects to which we will return in the third section.

themselves, but also explicitly supported education for children, emancipation for slaves, and rights for workers and migrants. All of these movements were particularly strong in Wisconsin, and early success in each of these initiatives was obtained there.<sup>11</sup> Wisconsin was the first state to ratify the 19<sup>th</sup> amendment, granting national suffrage to women,<sup>12</sup> and Wisconsin State legislature was occupied with attaining a number of ‘firsts’ – including passing the nation’s first equal rights bill,<sup>13</sup> creating the first statewide kindergarten system<sup>14</sup> and the first University Extension programs.<sup>15</sup> These Wisconsin extension programs later hosted one of the first public radio stations in the United States,<sup>16</sup> and eventually one of the nation’s first public television stations.<sup>17</sup>

More recently Wisconsin Senator Gaylord Nelson established Earth Day on April 22, 1970, a date that marks the anniversary of the modern environmental movement, ‘giving voice to an emerging environmental consciousness, channeling the energy of the anti-war protest movement and putting environmental concerns on the front page.’<sup>18</sup> I argue that each of these initiatives can be seen as having disproportionately large positive nonlinear benefits, furthered by the congruence of these freedom movements for women, children, and labor.

## *ii. From Determinism to Optionality*

In what I see as a related phenomenon, if you travel to far flung villages in Africa or Asia or South America you may hear, as I have, black American music being enthusiastically made and played – in my personal experience it is usually Prince, an artist also hailing from Wisconsin environs. This is

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<sup>11</sup> David Paul Thelen, *The New Citizenship: Origins of Progressivism in Wisconsin, 1885-1900* (University of Missouri Press, 1972); Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870-1920* (Simon and Schuster, 2010).

<sup>12</sup> Wisconsin Historical Society, “The Woman’s Suffrage Movement | Turning Points in Wisconsin History,” accessed March 6, 2017, <http://www.wisconsinhistory.org/turningpoints/tp-032/>.

<sup>13</sup> Wisconsin Historical Society.

<sup>14</sup> Lawrence Arthur Cremin, *The Transformation of the School: Progressivism in American Education, 1876-1957* (Knopf, 1962).

<sup>15</sup> “History of University of Wisconsin’s Cooperative Extension,” accessed March 6, 2017, <http://www.uwex.edu/ces/about/history.cfm>; n. In 1862 The Morrill Act endowed the University of Wisconsin to support instruction in agriculture and the mechanical arts and to establish agricultural experiment stations, anticipating Cambridge University’s extension programs, commonly held to be the world’s first, by over a decade. For more see *American Society for the Extension of University Teaching, University Extension: Its Definition, History, System of Teaching and Organization*. (Philadelphia: The American Society for the Extension of University Teaching, 1891), 3.

<sup>16</sup> “Public Broadcasting,” Wikipedia, March 6, 2017; n. In 1932, WHA in Madison and WLBL in Stevens Point started limited simulcasting of certain programs - nearly 20 years before Boston’s WGBH - often erroneously considered the first public radio. See: “WGBH History | 60 Years of Public Media,” accessed March 6, 2017, <http://www.wgbh.org/about/history.cfm>; Also see: “Wisconsin Public Radio,” Wikipedia, February 16, 2017.

<sup>17</sup> “Wisconsin Public Television,” Wikipedia, January 16, 2017, n. Wisconsin Public Television is a state network of public television stations operated primarily by the Wisconsin Educational Communications Board and the University of Wisconsin–Extension. The first broadcast was from WHA-TV in Madison on May 3, 1954 - officially the first public television in the nation was KUHT from the University of Houston, Texas, just less than a year prior on May 25, 1953.

<sup>18</sup> “The History of Earth Day,” *Earth Day Network* (blog), accessed March 6, 2017, <http://www.earthday.org/about/the-history-of-earth-day/>.

freedom music, people seem somehow to feel it and relate to it as an expression of individual freedom. It is perhaps a truism to say that blues, jazz and hip hop are all nonlinear benefits of an ongoing process in social evolution involving both the brutal legacy of slavery and the eventual justice of emancipation. It is also likely a truism to say that genuine freedom is not only the freedom to be alone, to be an individual – it is equally the freedom of *optionality*, to associate with whom you like when and where you like. But far more than this, freedom in the sense we actually value it is distinctly nonlinear and stochastic, random but not meaningless: it is the freedom of having encounters you could not have known to look for – the spontaneous, incidental daily interactions that make both *urbanity* and *rurality* pleasurable distinct. Such freedoms as these are championed by such efforts as have just been described as illustrating positive nonlinearity – and are threatened by such crises as are illustrated by negative nonlinearity.

Having been engaged to conceive of a New Charter of Athens in relation to the UN-HABITAT program for 2016, upon reflection it occurred to me that such nonlinear benefits as are obtained by the expansion of rights to include freedoms for various types of people might be most broadly obtained for all – including not only humans but all living things, from microorganisms to the global ecology – by attributing comparable rights to the essential elements of life itself: water, soil, air and fire (interpreted as physical and social structure). I sought precedents for such an idea, and found several – even of ancient origin – but the first and only precedent I found in law was the Swiss Constitution,<sup>19</sup> in which the purpose of the Constitution is described as being to ensure ‘the dignity of living beings.’ This deft phraseology is inclusive of humans, as well as of all other ‘living beings’ – prompting the Swiss Federal Committee on Ethics in Biotechnology to draft a document titled ‘On The Dignity of Living Beings with Regard to Plants: the moral consideration of plants for their own sake’.<sup>20</sup> In this document the committee provides Federal policy advice regarding the treatment of plants that I argue can be equally relevant, and quite possibly even more directly effective in terms of non-linear benefits, when phrased as ‘the dignity of living beings’ as regards *the elements* – the moral consideration of the elements ‘for their own sake’. The vast circuit of life as we know it relies on a certain continuity, and with nonlinearity as regards the elements – as in evolutionary biology in general – understanding what stays the same is likely as important, and possibly even more important, than understanding what changes.<sup>21</sup>

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<sup>19</sup> Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Routledge, 2016), 195.

<sup>20</sup> Jackie Leach Scully and Bachmann, trans., “The Dignity of Living Beings with Regard to Plants: The Moral Consideration of Plants for Their Own Sake” (Bern: Federal Ethics Committee on Non-Human Biotechnology, April 2008).

<sup>21</sup> S. J. Gould and R. C. Lewontin, “The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme,” *Proceedings of the Royal Society of London. Series B, Biological Sciences* 205, no. 1161 (1979): 583, Gould writes, “Yet evolutionary biologists, in their tendency to focus exclusively on immediate adaptation to local conditions, do tend to ignore architectural constraints and perform just such an inversion of explanation.” In other words, he is chastising his colleagues for emphasizing extrinsic over intrinsic factors – highlighting a disciplinary ‘one-sidedness’, a theme repeatedly addressed by a number of the key protagonists considered here. This will be further elaborated in 1.1.1\_ *Two Hans Jenny’s*, and intermittently thereafter. Also worth noting is that this text is addressed to evolutionary biologists, using architecture as an analogy and taking examples from such of our protagonists as Viollet le Duc, D’arcy Thompson, Darwin, and Herbert Spencer. Gould expands on this elsewhere [notably in: Gould, Stephen J. “The Exaptive Excellence of Spandrels as a

I have asserted that war and extractive industries are arguably the common root cause of the various crises precipitating the loss of both ecological coherence and democratic freedoms, and it may well be that the most meaningful democratic freedom now involves individuals forming communities for the broad and ongoing advocacy of ecological coherence. There are two convincing precedents for this second assertion – the parks movement, and the civil rights movement – and they are deeply interrelated. Frederick Law Olmsted's statement before the Civil War that 'if you want to end slavery, build parks'<sup>22</sup> anticipated opportunistic polemicists promoting his early *park system* to investors in Chicago informally as 'a barrier to the blacks,'<sup>23</sup> and is justified by Martin Luther King's legendary 'I Have a Dream' speech, delivered in 1963 at the base of the Lincoln Memorial – in a park designed by his son, Frederick Law Olmsted, Jr. and his interdisciplinary team at the turn of the century.<sup>24</sup>

These two lines of logic – the meaningful expansion of rights on one hand, and cultivating opportunities for positive nonlinearity on the other – are the red threads throughout this dissertation, and prompted the structure adopted in it. How would cities look if water had rights? How would regions be organized if soil had rights? How does a nation change if political boundaries are made congruent with ecological boundaries?

How does the world look if we create a 'charter of elements'?

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Term and Prototype." Proceedings of the National Academy of Sciences of the United States of America 94, no. 20 (September 30, 1997): 10750–55. doi:10.1073.

<sup>22</sup> Justin Martin, "The Cause of Future Freedom: Southern Travels and Journalism, 1852-57," in *Genius of Place: The Life of Frederick Law Olmsted* (London: Hachette, 2011), n. Olmsted's journalism in the South for abolition-era New York times (New-York Daily Times until 1869) was socially instrumental, although Olmsted's brand of abolitionism was known to be 'gradualist'.

<sup>23</sup> Rebecca Stanfield et al., "Racial Discrimination in Parks and Outdoor Recreation: An Empirical Study," in *Proceedings of the 2005 Northeastern Recreation Research Symposium* (Newtown Square, PA: U.S. Forest Service, 2005), n. As told to Dr. Michael Osman, the principle of which statement is evidenced in the empirical research of Stanfield, et al.

<sup>24</sup> Martin Luther King, "I Have a Dream," August 28, 1963, n. We will return to this park and this event in 2\_Civic Design - the park and monument are an expression of a movement known as civic design – the progressive spirit of which is exemplified by the fact that King is flanked on the podium-not by police-but by two park rangers, National Archives, archives.gov/files/press/exhibits/dream-speech.pdf.

## B. OVERVIEW - Research Themes, Structure and Initiatives

### *iii. Research Themes*

*A New Look at Civic Design* establishes the basis for a rediscovery of the latent disciplinary tradition of ‘civic design’, the immediate precursor of ‘urban design.’ The historic discipline of Civic Design (ca. 1900-1950) successfully implemented such *park systems* as ‘green armatures’ hosting civic services – including playgrounds, schools, municipal buildings, hospitals and public gardens. Such park systems provide a historically proven method for communities to stabilize and cultivate healthy urban ecological habitats – ensuring clean soil, water, and air – while providing options for active mobility (walking, biking, skating, etc.) from city centers to the ‘ecological corridors’ of regional greenways.

At a time of fierce debate about urbanism, ecological issues and climate change, investments in landscape projects are once again on the rise. Yet the participation of competing stakeholders, one might even say investors, in these projects suggests that an evaluation of current value judgments might benefit from this re-evaluation of past practices – identifying a ‘new school of nonlinear design’ through historic figures, discourses and events, and focusing on the creation of the *park systems* central to this tradition.

*A New Look at Civic Design* proposes a theoretical framework based on the interrelated concepts of *optionality*, *reversibility* and *life cycles*. The thesis traces a new tradition in design, while involving some familiar figures, where references – including pedagogues Schurtze, Addams and Montessori as well as designers Olmsted, Geddes, Wright – are associated with the use of the concepts, the heuristics, and the means of design and creation from other disciplinary spheres – for example music, with the notion of counterpoint – arriving at a critical appreciation of the neglected discipline of *civic design*, which this dissertation advocates as an important social and ecological counterpoint to urban design, its more explicitly commercial disciplinary successor. The framing of this new tradition represents an attempt to overcome the acknowledged destructive tendencies of linearity with the means of design and pedagogy – the disciplinary tradition of an interdisciplinary ambition.

The research also addresses the architectural discourse on form and its use in architectural pedagogy. Three texts taken as key references are *Notes on the Synthesis of Form* (Alexander 1964), *The Formal Basis of Modern Architecture* (Eisenman 1964, 2006) and *The Play of Forms: Nature Culture and Liturgy* (Van Der Laan 1988, 2005). Such pedagogical discourse has occasionally had an influence beyond the architectural discipline, and has even shaped public policy – as was the case with *The Charter of Athens* (Corbusier *et alia* 1943). Taking as a point of entry the ‘new’ Charter of Athens – involving as it does making policy recommendations regarding the regional scale relations of rural and urban districts, and the various infrastructures relating these – the dissertation is framed within a paradigm of *nonlinearity*, emphasizing *reversibility* and *optionality*. In turn, what fields of knowledge are best suited to inform

nonlinear architectural practice? The dissertation is developed as a response to this question, resulting in a proposal.

The central topic of the research is about form with a *civic design* development narrative, through *elicitive modeling* (*form determinants* established by *analogy* and *analysis*) and the design of form with which to relate rural and urban districts now – in light of ongoing industrialization and rapid urbanization. The research adopts a hybrid approach that can be characterized as ‘radical contextualism’ – identifying a ‘new school of nonlinear design’ through historic figures, discourses and events, inventorying the processes involved in both positive and negative examples, involving pedagogical traditions, disciplinary heuristics and interdisciplinary interactions – with the aim of evoking *positive nonlinearity* through practical design methods.

#### *iv. Research Structure*

Bearing the full title, *A New Look at Civic Design: Park Systems in America*, the research is structured in three parts, broadly corresponding with the themes of *ecology*, *economy* and *ecumenism* as they pertain to design.

The first two parts address *disciplinary legacy*. *Design Analogy* is a function of *interdisciplinary knowledge*, providing *concepts* informing the *grammar* of design, and involves its counterpart, *design analysis*, a function of *disciplinary knowledge*, providing *methods* informing the *lexicon* of design. *Civic Design* addresses applied *synthesis*, expressive of design *intent*. Each part consists of three chapters, the first of which outlines its *proposition*, the second explicating its *problematique*, the third positing a responsive *proposal*.

As a conclusion with a certain emphasis on *policy*, the final section – *The Charter of Elements* – is conceived of as a *heuristic narrative synthesis* comprised of four sections, each of which explicitly relate to advocacy for the ‘rights’ of elements through policy supporting *park systems* as *civic design*. The research is given context by the preface, *On Living Rights* and the concluding chapter, *The Metrics of Utopia*. Throughout the dissertation the register chosen for illustrations is that of design materials obtained from archival research, with priority given to previously unpublished material.

#### *v. Research Initiatives*

Current discourses might lead us to believe that climate change is an issue that has only recently been acknowledged, and even now the contrarian polemic aggressively forwarded by industrial protagonists (namely from oil-rich western countries) attempts to shed doubt on the phenomenon. Nevertheless, it is important to recognize that the issue of climate change had already been addressed by scientists and public health officials in the 1800’s.

A compelling example is provided by early environmentalist, polymath and American diplomat George Perkins Marsh (1801-82), who in 1847 delivered a public lecture warning of human-

induced climate change and the mismanagement of natural resources.<sup>25</sup> Marsh's certainty was founded on his own research, and was further informed by his familiarity with Alexander von Humboldt's observations in 1800 of harmful human-induced climate change in Venezuela.<sup>26</sup> In Marsh's far-seeing book *Man and Nature: Or, Physical Geography as Modified by Human Action* (1864) he asserted "The influence of man in changing the climate...needs no argument to substantiate."<sup>27</sup> This assertion was cited by Chicago Board of Health superintendent Dr. John Rauch (1828-94) to frame his own arguments advocating for public parks in *Public Parks: Their Effects upon the Moral, Physical and Sanitary Condition of the Inhabitants of Large Cities*. Rauch's report on the beneficial moral and sanitary effects of public parks had been commissioned by the Chicago Academy of Sciences, and it served a timely purpose: in February 1869, shortly after the Academy had lobbied for public parks with the report, the State of Illinois passed legislation establishing the commissions to create Chicago's park system.<sup>28</sup>

This research is thus firstly intended as a vehicle with which to establish the increasing relevance and utility of *park systems* today, featuring the best of the unpublished archival materials I've found in the course of my research. Although there are literally hundreds of *park systems* projects around the world – dating from the 1800s to the present, culminating with a fully-fledged international movement in the years from 1900-1950 – their very ubiquity makes them largely invisible to designers, and they are still generally not known by architects and landscape architects. But they ought to be, as they are currently being reinvented from the bottom up by communities – for example in Addis Ababa, Ethiopia and Medellin, Columbia, where they are providing the same social and ecological civic services as historic park systems – only now these civic services are explicitly provided to those most in need.

I endeavor to demonstrate how these *park systems* represent an important, yet largely forgotten, legacy of 'civic design' – a discipline that was the immediate precursor to 'urban design'. *Park systems* were built for the civic life in existing cities of their own time, enabling ecological coherence, active mobility and civic exchange – and in several vividly illustrative instances these *park systems* have also effectively anticipated the contemporary needs of those cities, as well. For example, Havana's farmers currently grow over 99% of their vegetables in the city itself, within the park system designed by Parisian civic designer Jean-Claude Forestier in 1929. Unlike famed figures like Frederick Law Olmsted

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<sup>25</sup> George Perkins Marsh, "Address to the Agricultural Society of Rutland County" (University of Vermont, September 30, 1847), <http://cdi.uvm.edu/collections/item/pubagsocaddr>.

<sup>26</sup> Andrea Wulf, *The Invention of Nature: Alexander von Humboldt's New World* (Knopf Doubleday Publishing Group, 2015), 5, 283–97. n. Wulf's heroic biography dedicates individual chapters to Humboldt's relationships with or influence on several key figures, including Goethe, Jefferson, Darwin, Thoreau, Haeckel, and Muir as well as Marsh.

<sup>27</sup> George Perkins Marsh, *Man and Nature: Or, Physical Geography as Modified by Human Action*, 1st ed. (New York: C. Scribner, 1864); as cited in Dr. John H. Rauch, *Public Parks: Their Effects upon the Moral, Physical and Sanitary Condition of the Inhabitants of Large Cities* (Chicago: S.C. Griggs & Co., 1869), 32.

<sup>28</sup> Glen E. Holt, "Private Plans for Public Spaces: The Origins of Chicago's Park System, 1850-1875," *Chicago History*, no. 8 (Fall 1979): 178.

and Frank Lloyd Wright, who also designed and built *park systems*, many *civic designers* did not leave central personal archives – and these incredible drawings, paintings and prints are now primarily to be found dispersed among the regional and municipal archives of the places where they worked: places like Birmingham, St. Louis, Nashville, Detroit, Chicago, Cincinnati, and Minneapolis, as well as smaller cities like Circleville, Ohio – where John Nolen’s *park system* defers to prehistoric mound complexes of the ancient inhabitants of the Mississippi River Valley – and Menomonie, Wisconsin – where Olmsted’s trusted associate Warren Manning drew the plans for an educational community in an ecological setting, initiated and supported by Welsh Unitarians, New England Transcendentalists and Irish Quakers.

Although little known, the material one finds in these municipal archives is nevertheless of exceptional quality and consistency, and the historic utility of these materials was truly instrumental. In the majority of cases these *park systems* were quickly accepted and effectively championed by their communities. Yet there are also several well-documented examples of these park systems being obstructed and even indefinitely blocked by vested financial, corporate, and industrial interests – broadly speaking first railroad, and then automobile and petroleum industries. Thus another of the central themes that emerged through the research involves the emergence of new transportation technologies, and their monopolistic tendency to displace existing modes of transportation. Many examples of this are considered, arriving at a counterexample in which multimodal transportation is woven together by civic designers throughout the park system in Madison, Wisconsin.

It was the discovery of two previously unpublished park systems that prompted me to focus on this theme. The first was Frank Lloyd Wright’s *Regional Highway and Park Systems* (1942) for his own Wisconsin community, which I found in the Wright archives at Columbia University’s Avery Library, and the second was Frank Lloyd Wright Jr.’s *Los Angeles County Regional Urban Plan*, which I found in the Lloyd Wright archives at UCLA. I soon found that these projects represented the end trajectory of an interdisciplinary innovation in the practice of *civic design* that has, as yet, been little explored.

Among scholarly interest that has recently been paid to the subject of park systems, Jon Peterson’s *The Birth of City Planning in the United States, 1840-1905* (2003) notes that civic designer’s *park systems* were of greater importance than their other great enthusiasm, *monumentality* – a subject that was polemicized in the 1950s by advocates of urban design who sought to delegitimize *civic design* – attributing the observation to an anonymous participant in a 1905 architectural convention.<sup>29</sup> The most recent *park systems* scholarship I have found is Sonja Dümpelmann’s essay ‘The Park International: Park System Planning as an International Phenomenon at the Beginning of the Twentieth Century’ (2005).<sup>30</sup> As the title suggests, the essay highlights the international nature of the phenomenon, but she

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<sup>29</sup> Jon A. Peterson, *The Birth of City Planning in the United States, 1840–1917* (JHU Press, 2003), 162, 377.

<sup>30</sup> Sonja Dümpelmann, “The Park International: Park System Planning as an International Phenomenon at the Beginning of the Twentieth Century,” *German Historical Institute*, no. 37 (Fall 2005): 75–86.

associates *park systems* exclusively with the City Beautiful movement, and makes no mention of *civic design*. Conversely, in *The Urbanism of Frank Lloyd Wright* (2015) Neil Levine refers to both *park systems* and *civic design*, but without explicitly addressing their relations – and characterizes *civic design* (mistakenly, as I purport to demonstrate) as a ‘discredited City Beautiful idea,’ and retroactively brands *civic designers* as ‘urban designers’.<sup>31</sup> I also learned that a colleague, senior researcher Kurt Culbertson, FASLA is preparing to publish a biography on George Kessler – a meticulously researched book that he has generously shared with me in manuscript form, it is the result of 20 years dealing with the subject. My own research differs from his insofar as his work is primarily one of individual biography in the heroic ‘genius’ mode, and as I understand it does not address the central role of his sister Fredericka Kessler – a Weimar-trained landscape architect – in their lifelong mutual work together. In contrast my book is a chronological collection of historical *park systems* in which biographical information is primarily anecdotal and project-related – and gives equal standing to both Kessler siblings, providing evidence of her role, as well as such noteworthy early collaborators as Henry Wright and Clarence Stein – who went on to create a collaborative movement of their own in with the multi-nodal Garden Cities of Letchworth and Welwyn, whose stubbornly traditional forms look downright Victorian when compared with the virtuous rigor of form contemporaneously evident in these taut *park systems*, the emerald crown of the practice of *civic design*.

More broadly, while research on one or another of these *park systems* has been published, so far as I know no comparable research providing an overview now exists. Historically, I know of two primary publications that do address this material, but only in part – nevertheless they have served as inspiring models for my own research. Andrew Wright Crawford’s *American Park Systems* (1905) sets out an early comparative assessment of 30 of the first park system projects in North America, and employs both material content and a presentation format that was effectively adopted by subsequent civic designers in their own publications. This was notably the case in Jean-Claude Nicolas Forestier’s *Grandes villes et systèmes de parcs* (1906), which compares several of the cities addressed by Crawford with their European counterparts.<sup>32</sup> A ‘critical’ re-edition of Forestier’s book – which original title is appended by the contributing editors as ‘followed by two memorials on the imperial cities of Morocco and Buenos Aires’, as it contains scholarly reappraisals of Forestier’s work in those two cities – was published in 1997. It is worth noting that both the original edition and the re-edition are in French, and evidently neither have been translated into other languages.

Finally, in researching this material I came across several instances when a similar study to the one I have undertaken might well have been initiated by one or another of the protagonists here. Lewis Mumford had not only considered writing but had made considerable preparation for a biography of American horticulturalist Liberty Hyde Bailey, whose idea of *ruralism* and popularization

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<sup>31</sup> Neil Levine, *The Urbanism of Frank Lloyd Wright* (Princeton University Press, 2015), xvii.

<sup>32</sup> Jean Claude Nicolas Forestier, *Grandes Villes et Systèmes de Parcs*, 1st ed. (Paris: Hachette, 1906).

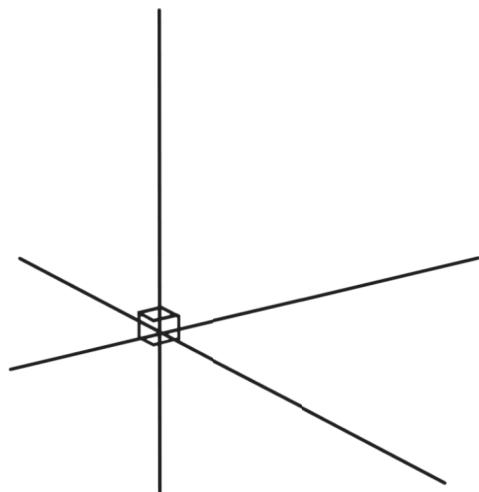
of *nature study* are closely considered here – but he never completed the work, and it remains unpublished. *A New Look at Civic Design* was the working title for Kevin Lynch’s research – eventually published as *Image of the City* (1960) – prior to receiving funding from corporate sponsors who were then actively dismantling *civic design* programs in order to establish the *urban design* paradigm, as this research demonstrates. In this regard it is also important to point out that very little has been written on Lynch’s work as it relates to his two-year Taliesin apprenticeship (1937-38), his work on the Broadacre City project, and his nearly ten year correspondence with his mentor Frank Lloyd Wright.<sup>33</sup> The research also addresses this intergenerational exchange, and the title *A New Look at Civic Design* is adopted for this research – more than five decades after Lynch – in assertion of its renewed contemporary relevance, and in homage to the contributions made by these early figures of a ‘new school of nonlinear design.’

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<sup>33</sup> Virtually the only scholarship I’ve found addressing this issue to date is the editor’s introduction to Kevin Lynch, *City Sense and City Design: Writings and Projects of Kevin Lynch*, ed. Tridib Banerjee and Michael Southworth (Cambridge, Mass.: MIT Press, 1995).

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# *DESIGN ANALOGY*



*v.I*



## **0 INTRODUCTION: Protagonists in Design and Pedagogy**

### 0.0.1 A Study of Influence: Individuals and Movements

*A review of inter-influences centered around designers Olmsted, Geddes and Wright, considering their shared ideal of ‘ruralism’ and reciprocal contributions to ‘urbanism’ highlighting Jane Addams and the settlement house movement.*

#### *i. Fields of Relations*

Entering the 21<sup>st</sup> century the dominance of the discipline of ‘urban design’, invented by architects in the mid-20<sup>th</sup> century, is being overtaken by the ‘landscape urbanism’ and ‘landscape infrastructure’ of landscape architects. Yet these distinctions are all quite recent, and in fact all these disciplines share common origins.

In response to a current recognition of the need for ecological coherence in cities and regions, I propose a reframing of these disciplines with a comparative synthesis of several prominent figures whose relations have generally been, until now, little considered. Landscape architect Frederick Law Olmsted (1822-1903), ecologist and sociologist Patrick Geddes (1854-1932) and architect Frank Lloyd Wright are not commonly associated with one another –although they are each the subject of exhaustive scholarly interest, their relations might not be apparent even to those quite familiar with their work.<sup>1</sup> Their direct connections are admittedly rather sparse – they did not correspond, they do not write about one another, and they are not known to have met. Yes, their prolific production provides numerous projects within close proximity: an inventory of Wright buildings in or at the edges of Olmsted sites reveals the profound sympathy of their design approaches and objectives – this is developed later in the dissertation (*2.1 Public Parks*). But in order to reveal their deeper relations, and the historical relationships of the design disciplines beyond these towering figures, we can use these figures and movements as ‘lenses’ through which to look at second order relations. This will be done throughout the text, but an initial review of these second order relations gives meaningful context to these individuals, and reveals how they themselves were participants in progressive movements much larger than themselves or their professional disciplines.

Indeed, one effective way of entering into this field of relations could be to begin with a consideration of one of the most important civic movements of their time: the settlement house movement. This movement was truly instrumental, related as it was to other essentially progressive movements contemporaneous with it – for example, the public parks movement, woman’s suffrage, labor, civil rights and education movements. And there is still much to be learned from the settlement house movement, as its participants were actively contending with the very issues of ecocide, inequity, and rapid urban expansion confronting us today.

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<sup>1</sup> Among noteworthy references to the influence of Olmsted on Wright are Donald Leslie Johnson's *Frank Lloyd Wright versus America: The 1930s* (Cambridge: The MIT Press, 1991) and Neil Levine's, *The Urbanism of Frank Lloyd Wright* (Princeton University Press, 2015).

## *ii. The Settlement House Movement: Residence, Research and Reform*

The settlement house movement was one of the most effective acts of social coordination in the history of social welfare, directly contributing to the practical reform of public policy pertaining to education, health, sanitation, and governance, for example. The expansion of social settlements in the United States corresponded closely with the Progressive Era, the struggle for woman's suffrage, the absorption of millions of new immigrants into American society, and the development of professional social work. The movement started in England in 1884 when Canon Samuel Barnett, Vicar of St. Jude's Parish, founded Toynbee Hall in East London. The settlement idea, as formulated by Barnett, was to have university men 'settle' into a working-class neighborhood where they would not only help 'relieve poverty and despair through their good works' but also learn something about the real world by 'living day-to-day with the residents of the slums.'<sup>2</sup>

Settlements were initially organized to be 'friendly and open households,' a place where members of the privileged class could live and work as pioneers or 'settlers' in poor areas of a city where social and environmental problems were great. Settlements generally had no set program or method of work. The idea was that university students and others would make a commitment to reside in the settlement house in order to 'know intimately' their neighbors. The primary goal for many of the early settlement residents was to conduct sociological observation and research. For others it was the opportunity to share their education and values as a means of helping the poor and disinherited to overcome adverse personal circumstances. According to an early Toynbee Hall report,<sup>3</sup> it was intended to be:

*...an association of persons, with different opinions and different tastes; its unity is that of variety; its methods are spiritual rather than material; it aims at permeation rather than conversion; and its trust is in friends rather than in organization.<sup>4</sup>*

Public response to Toynbee Hall was very positive, and its influence was immediate, drawing participants from various disciplines and backgrounds. Among these early visitors was Jane Addams (1860-1935), then a young activist and reformer, who visited Toynbee Hall in the summer of 1888. Her response to the experience was highly enthusiastic:

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<sup>2</sup>J.E. Hansen, "Settlement Houses: An Introduction," *Social Welfare History Project* (blog), January 19, 2011, <http://socialwelfare.library.vcu.edu/settlement-houses/settlement-houses/>.

<sup>3</sup>"Reports - Toynbee Hall," n. Such reports have been issued intermittently by Toynbee Hall since its inception, and Toynbee Hall has been providing free advice services since the launch of the Poor Man's Lawyer in 1898, accessed March 25, 2017, <http://www.toynbeehall.org.uk/reports>.

<sup>4</sup>Hansen, "Settlement Houses."

*[It is] a community of University men who live there, have their recreation clubs and society all among the poor people, yet, in the same style in which they would live in their own circle. It is so free of ‘professional doing good,’ so unaffectedly sincere and so productive of good results in its classes and libraries [it] seems perfectly ideal.<sup>5</sup>*

This visit prompted her to establish her own settlement house, Hull House, in Chicago the following year – and it was then only the second settlement house in the United States.<sup>6</sup> Hull House remained a vital influence for over 120 years, until its closure – under dubious political circumstances – in 2012.<sup>7</sup> With its innovative social, educational, and artistic programs, Hull House became the standard bearer for the movement that had grown, by 1920, to almost 500 settlement houses nationally.<sup>8</sup> Addams remained dedicated to Hull House throughout her life, becoming a social worker, public philosopher, sociologist, author, and leader in women's suffrage and world peace – becoming, in 1931, the first American woman to be awarded the Nobel Peace Prize. Throughout all her activities, she was instrumental in bringing together key figures whose relations will be central to the following chapters.

As a member of the staff at the new University of Chicago,<sup>9</sup> she became close to innovative pedagogical figures like John Dewey,<sup>10</sup> William James,<sup>11</sup> and John Commons,<sup>12</sup> and proudly describes the participation at Hull House of landscape architect Jens Jensen, whom she refers to simply as ‘a member of the Hull-House Men's Club who had been appointed superintendent of Douglas Park [who] had secured there the first public swimming pool, and his fellow club members were proud of the achievement.’<sup>13</sup> Dewey and James knew Patrick Geddes, and lectured at Outlook Tower – James had also lectured at some sessions of the Edinburgh Summer Meeting, a series of international summer schools organized by Geddes.<sup>14</sup> Each of these figures also had some degree of personal connection with Frank Lloyd Wright. Of course, Addams and Wright were also very close: Addams had personally invited Wright and his fellow Steinway Hall-collaborator Dwight Perkins to be founding members of the Chicago Arts and Crafts Society, which they duly formed at Hull House on

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<sup>5</sup> Jane Addams, *Twenty Years at Hull-House, w/ Autobiographical Notes* (Norwood, Mass.: Norwood Press, 1910), 74.

<sup>6</sup> “Open Collections Program: Immigration to the US, Settlement House Movement,” accessed March 25, 2017, <http://ocp.hul.harvard.edu/immigration/settlement.html>.

<sup>7</sup> Rick Cohen, “Death of the Hull House: A Nonprofit Coroner’s Inquest,” Non Profit News For Nonprofit Organizations | Nonprofit Quarterly, August 2, 2012, <https://nonprofitquarterly.org/2012/08/02/hull-house-death-nonprofit-coroners-inquest/>.

<sup>8</sup> Mary Ann Johnson, “Hull House,” in *The Encyclopedia of Chicago*, ed. James Grossman, Ann Keating, and Janice Reiff (Chicago: Chicago Historical Society, 2004).

<sup>9</sup> Addams, *Twenty Years at Hull-House*, 108.

<sup>10</sup> Addams, 172–73, 299.

<sup>11</sup> Addams, 217.

<sup>12</sup> Addams, xi.

<sup>13</sup> Addams, 103–4.

<sup>14</sup> Volker M. Welter, *Biopolis: Patrick Geddes and the City of Life* (MIT Press, 2002), 276. n. The Edinburgh Summer Meetings were held annually from 1887–1899.

Oct. 22, 1897.<sup>15</sup> The Arts and Crafts Society was to host many of these key figures – among those hosted were Toynbee Hall founder Canon Barnett and his associate Patrick Geddes, whom Addams had met in London in 1888 and hosted at Hull house in 1899.<sup>16</sup> Although he was an active participant in the society in this period, it is not known whether Wright attended Geddes's lecture - nor indeed whether they ever met. Reflecting on the impact of Geddes's Hull House presentation, Charles Zueblin, Professor at University of Chicago and Hull House Arts and Crafts Society member, had described Geddes's Outlook Tower in Edinburgh as 'the world's first sociological laboratory'.<sup>17</sup> Addams however resisted that term being applied to Hull House, writing,

*I have always objected to the phrase 'sociological laboratory' applied to us, because Settlements should be something much more human and spontaneous than such a phrase connotes, and yet it is inevitable that the residents should know their own neighborhoods more thoroughly than any other, and that their experiences there should affect their convictions.*<sup>18</sup>

Russian émigré and anarchist Peter Kropotkin was a friend and correspondent of Geddes,<sup>19</sup> and knew Outlook Tower well, having visited him there in 1886.<sup>20</sup> Addams also hosted Kropotkin as a resident at Hull House in 1901, where he lectured to the Arts and Crafts Society with a summary of his book *Fields, Factories and Workshops* and on the subject of *Mutual Aid*, which book of the same title was published the following year.<sup>21</sup> Addams writes of Kropotkin's influence on her own work, describing the Kropotkin-influenced 'coöperative congress' held at Hull House the summer of the Olmsted-designed Chicago World's Fair in 1893<sup>22</sup> – an event to which she repeatedly refers, and to which we will return in due course. It was also for presentation to this society that Wright thoroughly rewrote his 1894<sup>23</sup> text *The Architect and the Machine*, christened it *The Art and Craft of the Machine*,<sup>24</sup> and delivered it as a lecture to the Society at Hull House on Friday evening, March 1, 1901. Wright later reflected,

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<sup>15</sup> Addams, *Twenty Years at Hull-House*.

<sup>16</sup> Ibid., 161–65, 171.

<sup>17</sup> Charles Zueblin, "The World's First Sociological Laboratory," *American Journal of Sociology* 4, n.5 (1899): 577–92.

<sup>18</sup> Addams, *Twenty Years at Hull-House*, 308.

<sup>19</sup> Jonathan Pullman, *A Man for Our Times - The Living Legacy of Patrick Geddes* (Edinburgh: Workers Education Association, 2012) n. Pullman relates a memorable anecdote about Kropotkin and Geddes up late and enthusiastically singing *The Internationale* together.

<sup>20</sup> Welter, *Biopolis*, 258.

<sup>21</sup> Beth Eddy, "Struggle or Mutual Aid: Jane Addams, Petr Kropotkin, and the Progressive Encounter with Social Darwinism," *The Pluralist* 5, no. 1 (2010): 21–43, <https://doi.org/10.5406/pluralist.5.1.0021>; Peter Kropotkin, *Fields, Factories, and Workshops: Or Industry Combined with Agriculture and Brain Work with Manual Work*, 1st edition (New York: Putnam's Sons, 1898).

<sup>22</sup> Addams, *Twenty Years at Hull-House*, 109.

<sup>23</sup> Olgivanna Lloyd Wright, *Frank Lloyd Wright: His Life, His Work, His Words* (New York: Horizon Press, 1966), 206, disputed. Note: I have found that there has been general confusion about the date of this text, but believe I have at least partially resolved the issue, and have prepared an endnote to explain fully.

<sup>24</sup> Frank Lloyd Wright, "The Art and Craft of the Machine," in *Brush and Pencil*, ed. Charles Francis Browne and Frederick William Morton, vol. 8 (Chicago: Phillips & Company, 1901), 77–90.

*"The next day there was an editorial in the Chicago Tribune commenting upon the fact that an artist had said the first word for the use of the machine as an artist's tool. Jane Addams herself must have written it, I suspect. She sympathized with me..."*<sup>25</sup>

We will return to this text, and to the insightful Chicago Tribune editorial cited by Wright for further consideration in a later chapter (*1.3.3 Do It Yourself*). Whether or not it was authored by Addams is yet to be determined – the style indicates it could well be – but at this point it is sufficient to point out that the essay is apparently Wright's first attempt at giving form to a vision for the city.<sup>26</sup> Kropotkin's lecture to the Arts and Crafts Society was given on April 17<sup>th</sup>, about a month and a half after Wright's lecture.<sup>27</sup> This is noteworthy, as Wright's early essay does not explicitly address decentralization: but Kropotkin himself was concerned with rural and urban relations, and was an early advocate of decentralization. Wright attended his lecture, and in later years referred explicitly to Kropotkin's influence on his rural urban vision for decentralization, Broadacre City.

### *iii. Common Ground and Disciplinary Polemics*

I believe it is the notion of *ruralism* that most closely binds Olmsted, Geddes and Wright – figures I argue can be regarded as protagonists of a 'new school of nonlinear design'. Certainly Olmsted, Geddes and Wright have some other fascinating connections that have been little explored, to which we will turn later (*2.3 Civic Design*). But I argue that their essential commonality was that they each identified closely with *ruralism*, a term coined by American horticulturalist Liberty Hyde Bailey<sup>28</sup> (1858–1954) about whom Lewis Mumford – a protégé of, and close correspondent with, both Geddes<sup>29</sup> and Wright<sup>30</sup> – had intended to write a biography, but didn't.

Olmsted's entire oeuvre is predicated on rural urban relations,<sup>31</sup> and Geddes's only diagram in his book 'Cities in Evolution' explicitly illustrates them: on the left the 'star-like' form of the city radiating from a center at the intersecting corridors, and on the right the reciprocal force of the

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<sup>25</sup> Frank Lloyd Wright, *An Autobiography*, 3rd printing edition (Duell, Sloan & Pearce, 1943), 132.

<sup>26</sup> "ART AND THE MACHINE (March 4, 1901)," accessed January 26, 2016, <http://archives.chicagotribune.com/1901/03/04/page/6/article/among-the-new-books>.

<sup>27</sup> Paul Arvich, "Kropotkin in America," *International Review of Social History* 25, no. 1 (1980): 27.

<sup>28</sup> Harlan P. Banks, "Liberty Hyde Bailey, 1858—1954: A Biographical Memoir" (National Academy of Sciences, 1994), <http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/bailey-liberty-h.pdf>.

<sup>29</sup> Frank G. (Jr.) Novak, ed., *Lewis Mumford and Patrick Geddes: The Correspondence* (London: Routledge, 1995).

<sup>30</sup> Robert Wojtowicz and Bruce Brooks Pfeiffer, *Frank Lloyd Wright & Lewis Mumford: Thirty Years of Correspondence*, ed. Bruce Brooks Pfeiffer (New York: Princeton Architectural Press, 2001).

<sup>31</sup> Frederick Law Olmsted, "The Concept of the 'Park Way,'" in *The Papers of Frederick Law Olmsted: Writings on Public Parks, Parkways, and Park Systems*, ed. Charles E. Beveridge and Carolyn R. Hoffman (Baltimore: Johns Hopkins University Press, 1997), 112–46; Frederick Law Olmsted, *Walks and Talks of an American Farmer in England*, vol. 1 (New-York: G.P. Putnam & Company, 1852), <http://www.biodiversitylibrary.org/item/58759>; Frederick Law Olmsted, "A Classic Park," in *The Papers of Frederick Law Olmsted: Writings on Public Parks, Parkways, and Park Systems*, ed. Charles E. Beveridge and Carolyn R. Hoffman (Baltimore: Johns Hopkins University Press, 1997), 79–111.

country pushing back into the city, and yielding an articulate, ruffled edge condition.<sup>32</sup> (See illustration p.435) By elongating that edge of strong contrasts and defining it with civic structures, playgrounds and parks, he argues, the distinct qualities of rural and urban side-by-side were capitalized upon – *ecologically, economically and ecumenically*. The myopic enthusiasm for urbanism in their own era was countered by the determined efforts of these self-described ‘ruralists’ - and now? Of what relevance is the notion of ‘ruralism’ to democratic institutions, or to the form of the contemporary city?

One aspect of this is the pedagogy of ‘nature study’ – explicitly advocated for by each of these protagonists, as well as by Liberty Hyde Bailey and John Dewey, the idea is closely related to the notion of ‘ruralism’ and has recently been recognized as ‘the forgotten popularizer of America’s conservation ethic.’<sup>33</sup> This theme is woven through each section, and is explicitly returned to in the opening section of *3.1\_The Charter of Elements*, ‘Nature Patterns’, as being central to pedagogy, practice and policy.

I have already referred to Wright’s acknowledgement of Kropotkin’s influence on his thinking regarding decentrality. Wright first explicitly addresses decentrality in his 1930 lecture on ‘The City’ at Princeton University,<sup>34</sup> and it is also here that it appears he first used the term ‘ruralism’, writing: “Ruralism as distinguished from Urbanism is American, and truly Democratic.”<sup>35</sup> Later that year he lectured at the Art Institute of Chicago and, again echoing his early *Art and Craft of the Machine*, he states,

*Decentralization not only of industry but of the city itself is desirable and imminent... The greatest service sentient man is to receive from the machine... will be the death of urbanism! Hectic urbanism will be submerged in natural ruralism.*<sup>36</sup>

That he intends this as an explicitly polemic statement becomes clear when he writes, in *An Autobiography* of 1932:

*Ruralism as distinguished from “Urbanisme” for future machine-age development is the business of the modern architect. Truly democratic business.*<sup>37</sup>

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<sup>32</sup> Patrick Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 1968th ed. (New York: Harper & Row, 1915).

<sup>33</sup> Kevin C. Armitage, *The Nature Study Movement: The Forgotten Popularizer of America’s Conservation Ethic* (University Press of Kansas, 2009).

<sup>34</sup> Frank Lloyd Wright, *Modern Architecture: Being the Kahn Lectures for 1930*, [Facsimile of 1931 ed.] (Carbondale and Edwardsville: Southern Illinois University Press, 1987).

<sup>35</sup> Wright, 109.

<sup>36</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.2: 1930-1932*, ed. Bruce B. Pfeiffer, vol. 2 (New York : Scottsdale, AZ: Rizzoli, 1992), 90.

<sup>37</sup> Wright, 2:345.

That he employs the French spelling in quotation suggests that Wright is formulating his own vision – based on his own rural experience, as affirmed by Kropotkin – in direct polemic opposition to Le Corbusier's *urbanisme*. This appears to be confirmed by the fact that the term 'Broadacre City' was first used by Wright in an article he contributed to the *New York Times Magazine* in March 1932,<sup>38</sup> written as a critical response to one that Le Corbusier had written for the same magazine just two and a half months earlier.<sup>39</sup> The magazine's editors described Wright's text as presenting 'a diametrically opposed program...which he [Wright] sees as the logical development of the machine age.'<sup>40</sup>

Wright was clearly motivated by Le Corbusier to clarify and differentiate his own positions, and he had – with certain qualifications – favorably reviewed the English translation of *Towards a New Architecture* in the periodical *World Unity* in September of 1928.<sup>41</sup> Soon thereafter Wright confronted Le Corbusier's vision for *The City of To-morrow*, co-opting it and turning it on its head, describing his own "Broadacre City of tomorrow" in the explicit terms of a counterproposal.<sup>42</sup> Rather than "tear down the city and try to bring the green country in only to build the city up again on its old site," he proposed to "take the city to the country." By engaging in this deliberate polemic regarding 'urbanism' and 'ruralism' each of these protagonists were picking up on the longstanding pedagogical tradition of *coincidentia oppositorum*, the coincidence of opposites.

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<sup>38</sup> Frank Lloyd Wright, "Broadacre City: An Architect's Vision," *New York Times Magazine*, March 1932.

<sup>39</sup> Le Corbusier, "A Noted Architect Dissects Our Cities: Le Corbusier Indicts Them as Cataclysms and Describes His Ideal Metropolis," *New York Times Magazine*, January 1932.

<sup>40</sup> Levine, *The Urbanism of Frank Lloyd Wright*, 161.

<sup>41</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.1: 1894-1930*, ed. Bruce Brooks Pfeiffer, vol. 1 (New York : Scottsdale, AZ: Rizzoli, 1992), 317–18, reprint of *World Unity*, September 1928, pages 393–95.

<sup>42</sup> Levine, *The Urbanism of Frank Lloyd Wright*, 163.



### 0.0.2 Coincidentia Opppositorum: The Pedagogical Legacy of Dualism

*Addressing the fundamental principle of dualism, the subject of disciplinary polemics can be put on a firm historical footing by situating it within the ancient pedagogical tradition of coincidentia oppositorum – a Latin phrase meaning ‘the coincidence of opposites’. By establishing strongly contrasting positions the possible relations between apparent, even ideological, oppositions can be usefully explored.*

The phrase *coincidentia oppositorum* is often attributed to Nicholas of Cusa (1401-1464), the renowned German polymath, although he never actually uses precisely those words. In the fourth chapter of the first book of his *De Docta Ignorantia* of 1440,<sup>43</sup> he writes that the ‘absolute Maximum’ is beyond all opposition (*oppositoria*), but the word for ‘opposition’ is subsequently replaced by the word for ‘contradiction’ (*contradicторia*).<sup>44</sup> In the dedicatory letter he introduces the phrase *ubi contradictoria coincidunt* – speaking of the intellect’s raising itself to ‘that Simplicity where contradictories coincide.’<sup>45</sup> Contemporary scholars maintain that Nicholas did not meaningfully distinguish between these various expressions, but simply uses them interchangeably.<sup>46</sup>

Nicholas is generally regarded as one of the first proponents of Renaissance humanism,<sup>47</sup> a movement ostensibly initiated in the preceding century by Petrarch (1304-1374) and his rediscovery of Cicero’s letters.<sup>48</sup> True to his era – and in alignment with the interdisciplinary scope of this research – *De Docta Ignorantia* is a fascinating combination of geometry, mathematics and theology. The title translates directly as ‘On Learned Ignorance’, but given the content, which crosses the boundaries of art, science and theology, it can be meaningfully paraphrased as ‘on the limits of scientific knowledge’.<sup>49</sup>

#### i. Early Rural Urban Polemics

Consistent with the premise of *coincidentia oppositorum*, Nichols of Cusa also made extensive use of the phrases *vita activa* and *vita contemplativa*,<sup>50</sup> describing two opposite but complementary modes of living with a distinctly spiritual emphasis. He conceived of the completely spiritual life as necessarily oscillating between the ‘life of action’ and the ‘life of contemplation’, alternating between the two at intervals. This notion was, once again, likely based on Petrarch’s rereading of Cicero, who had written

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<sup>43</sup> Cardinal Nicholas (of Cusa, *Nicholas of Cusa On Learned Ignorance: A Translation and an Appraisal of De Docta Ignorantia*, trans. Jasper Hopkins (Minneapolis: A.J. Banning Press, 1985), n. trans. On Learned Ignorance-the sense of which might be paraphrased as “on the limits of scientific knowledge.”

<sup>44</sup> Cusa, 7.

<sup>45</sup> Cusa, 7.

<sup>46</sup> Cusa, 7.

<sup>47</sup> Pauline M. Watts, “Renaissance Humanism,” in *Introducing Nicholas of Cusa: A Guide to a Renaissance Man*, ed. Christopher M. Bellitto, Thomas M. Izbicki, and Gerald Christianson (New York: Paulist Press, 2004).

<sup>48</sup> Carol E. Quillen, *Rereading the Renaissance: Petrarch, Augustine, and the Language of Humanism* (University of Michigan Press, 1998), 68.

<sup>49</sup> Cusa, *Nicholas of Cusa On Learned Ignorance*, 8.

<sup>50</sup> Watts, “Renaissance Humanism,” 169.

of the need for civic-minded citizens to have recourse to both *otium* and *negotium*, relating to rural and urban contexts, respectively. Petrarch himself addresses the subject in his *De vita solitaria*,<sup>51</sup> citing Cicero and characterizing relative solitude in a rural setting (*villa otium*) as the ideal context for the study of nature, meditation, contemplation and writing.

This early contrast of rural and urban effectively sets the stage for the 20<sup>th</sup> century disciplinarity polemics of *ruralism* and *urbanism*. The precedent it sets is far reaching, associating rural and urban with an array of other oppositions – of ease and difficulty; of relative solitude and social engagement; of family intimacy and public business; of ‘dignified’ leisure and ‘troublesome’ occupation. Perhaps most significant, if least surprising, is its profound reframing of agricultural activity and military engagement as oppositions – contrasted as peace and war, and recalling the 8<sup>th</sup> century BC admonition of the prophet Isaiah, ‘...they shall beat their swords into plowshares...neither shall they learn war any more’ (Isaiah 2:4)<sup>52</sup> and his successor the prophet Joel’s 6-4<sup>th</sup> century call to arms, ‘Beat your plowshares into swords...let the weak say, I am strong’ (Joel 3:10).<sup>53</sup>

### *ii. The Legacy Of Dualism: Polemic And Rhetoric*

Virtually every known early system of advanced thought is based on some form of dualism, from Animism to Taoism to Zoroastrianism. Certainly the holistic recognition of the complementary, interconnected, and interdependent nature of opposing or contrary forces has no greater, nor more graphic, icon than the Chinese *yin* and *yang* symbol. As was echoed some three thousand years later in Nicholas of Cusa’s statement that the ‘absolute Maximum’ is beyond all opposition, the worldview represented by this symbol is one of a higher level unity comprised of *yin* – the negative, passive, feminine principle in nature – and *yang* – the positive, active, masculine principle in nature.

The true origins of the symbol are lost in mythical antiquity, as are the origins of the book most closely associated with it – the *I Ching*, or *Book of Changes*, whose earliest iterations are dated to 1150-1000 BC.<sup>54</sup> The book is uniquely important in world literary history, and the roots of both branches of Chinese philosophy – Confucianism and Taoism – are found here.<sup>55</sup> The book presents perhaps the earliest system of binary nonlinearity: consisting of the *yin* and *yang* symbol (as a kind of potent zero) and 64 ‘hexagrams’ – figures of six horizontal lines, either complete (*yang*) or broken (*yin*), each of which is accompanied by a parable-like description. The system was employed both as a philosophical framework and as a method of oracular divination. The essential premise of the *yin* and *yang* and the *I Ching* is that different combinations of *yin* and *yang* generate different materials and phenomena, as poetically expressed in the second chapter of Lao-Tze’s (+531 BC) *Tao Te Ching*, or *Book of Ways*:

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<sup>51</sup> Anonymous, *La Vita Solitaria De Francesco Petrarca...* (Nabu Press, 2012).

<sup>52</sup> *The Holy Bible: King James Version* (Peabody, Mass.: Hendrickson, 2004), 332.

<sup>53</sup> *The Holy Bible*, 434.

<sup>54</sup> Michael Nylan, *The Five Confucian Classics* (Yale University Press, 2014).

<sup>55</sup> Hellmut Wilhelm, *The I Ching or Book of Changes* (Princeton University Press, 2011), 3.

*When people see things as beautiful,  
ugliness is created.*

*When people see things as good,  
evil is created.*

*Being and non-being produce each other.  
Difficult and easy complement each other.  
Long and short define each other.  
High and low oppose each other.  
Fore and aft follow each other.*

*Therefore the Master  
can act without doing anything  
and teach without saying a word.  
Things come her way and she does not stop them;  
things leave and she lets them go.*

*She has without possessing,  
and acts without any expectations.  
When her work is done, she takes no credit.  
That is why it will last forever.<sup>56</sup>*

Lao-Tze's contemporary, the Greek philosopher Anaximander, (c.610-546 BC) likewise proposed that every element existed in relation to its opposite. The early Greek characterization of fundamental elements (earth, air, water and fire) were thus related to pairs of opposites (water is cold, fire is hot, etc.). Anaximander described the balanced, mutual transformation of the elements:

*"The Non-Limited is the original material of existing things; further, the source from which existing things derive their existence is also that to which they return at their destruction, according to necessity; for they give justice and make reparation to one another for their injustice, according to the arrangement of Time."<sup>57</sup>*

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<sup>56</sup> Laotze, *Tao Te Ching* (Wordsworth Editions, 1997), 2.

<sup>57</sup> Kathleen Freeman, *Ancilla to the Pre-Socratic Philosophers: A Complete Translation of the Fragments in Diels, Fragmente Der Vorsokratiker* (Cambridge: Harvard University Press, 1983), 19.

Adopting this dualist conception from his predecessors, Pythagoras (c.570-495 BC) established a table of opposites with which to order this conception of the world. His list was later reconstructed by Aristotle (c.384-322 BC) in his *Metaphysics*, and contains ten dualities – the first being the most important, while the others are seen as different aspects of this fundamental dichotomy:<sup>58</sup>

|          |           |
|----------|-----------|
| Limited  | Unlimited |
| Odd      | Even      |
| One      | Many      |
| Right    | Left      |
| Male     | Female    |
| Rest     | Motion    |
| Straight | Curved    |
| Light    | Dark      |
| Good     | Bad       |
| Square   | Oblong    |

Many other commonsense dualities relevant to everyday experience can be imagined without much effort – up and down, on and off, in and out, positive and negative, black and white, happy and sad, truth and falsehood, living and nonliving, liberal and conservative, chaos and order, etc. Indeed, Pythagoras's contemporary Heraclitus (c.535-475 B.C) characterizes the products of *nature* and *culture* as an iterative sequence of constant reversals, emphasizing the relations of opposing tensions at various periodic intervals. The succession of opposites is seen as the basis for change, and for life itself: “Cold things grow hot, a hot thing cold, a moist thing withers, a parched thing is wetted.”<sup>59</sup> Further, opposition is seen as the fundamental condition of harmony. “That which is in opposition is in concert,” he writes, “and the most beautiful harmony comes from things that differ.”<sup>60</sup> It is interesting to note that the late Middle English word *harmony* is derived from the Greek *harmos*, taken from carpentry and meaning fitting or joining together.

Many of the *dualisms* employed by the historic figures cited here, and developed through the movements in which they participated, have repeatedly proved their utility – often resurfacing in subsequent discourses. For example, Hannah Arendt’s monumental work *The Human Condition* is framed around a determined revivification of that early conception of *vita activa*.<sup>61</sup> In the book she deliberately emphasizes the urban, or *negotium*, side of this fundamentally dualist conception, arguing

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<sup>58</sup> Jamie James, *The Music of the Spheres: Music, Science, and the Natural Order of the Universe*, 1st ed. 1993. 2nd printing 1995 edition (New York: Copernicus, 1995), 28.

<sup>59</sup> Richard D. McKirahan, *Philosophy Before Socrates* (Hackett Publishing, 2011), 119.

<sup>60</sup> Christian Meier, *A Culture of Freedom: Ancient Greece and the Origins of Europe* (Oxford: OUP, 2011), 233.

<sup>61</sup> Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958).

that it had ‘been curiously neglected by a tradition which considered it chiefly from the standpoint of the *vita contemplativa*,’<sup>62</sup> that is, the rural – or *otium* – side of that earlier conception in which rural and urban, like the yin and yang, were holistically conceived of as complementary polarities. The tradition she refers to was largely a monastic one, which from age to age had recourse to retreat and solitude, and tended to vilify urban life as worldly and essentially corrupt. But Arendt loved the city, and sought to reconcile a neglect she rightly perceived as biased.

### *iii. Contemporary Polemics*

At the beginning of this introduction we saw that Frank Lloyd Wright was prompted to champion *ruralism* in response to what he perceived as the regrettable neglect of this thing he loved. Le Corbusier’s *urbanism* had been met with popular support in the media, in academia and in the profession – so Wright’s formulation of *ruralism* was in that sense reactionary, even blatantly opportunistic. There were periods when the polemicism between these men was ‘merely’ rhetoric in the contemporary sense – laden with bombast and hyperbole, tinged by jealousy or spite, even appealing to narrowly nationalist sentiment. But in retrospect we can recognize that in fact Wright and Corbusier have been effective polemicists on both sides of rural/urban and mechanic/organic debates when it suited their purpose,<sup>63</sup> and that they were at their best when they employed rhetoric in the classical Greek sense of employing artfully persuasive, effective speech.

The enduring utility of dualism – variously characterized as antithesis, binary, biplicity, contradictory, dichotomy, duality, dyad, opposite, polarity, etc. – has enabled didactic progress through dialectic polemics in various fields. Citing or refuting one another and their predecessors, the legacy of dualism extends from these earliest examples through the philosophy of Plato,<sup>64</sup> (+348 BC) to the scientific and geometric methods of Descartes,<sup>65</sup> (1596-1650), and the legal arguments of Liebniz,<sup>66</sup> (1646-1714), and to the present day. It is therefore curiously paradoxical, if somehow perfectly consistent with the nature of polemics, that in recent years a great deal of effort has been made in a variety of fields to argue for abandoning the very notion of dualism. Many conferences and literally dozens of scholarly papers are boldly titled ‘Beyond Dualism’ and appended by various subtitles.<sup>67</sup>

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<sup>62</sup> Arendt, 78.

<sup>63</sup> See for example: Luis Fernández-Galiano and Gina Cariño, *Fire and Memory : On Architecture and Energy* (Cambridge, Mass: MIT Press, 2000). This masterful inverse reading will later be considered at length.

<sup>64</sup> Plato, *Plato: Phaedo* (Cambridge University Press, 1955).

<sup>65</sup> Zensho Yoshida, *Nonlinear Science: The Challenge of Complex Systems* (New York: Springer, 2010), 2–3.

<sup>66</sup> Mark Kulstad and Laurence Carlin, “Leibniz’s Philosophy of Mind,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Winter 2013 (Metaphysics Research Lab, Stanford University, 2013), <https://plato.stanford.edu/archives/win2013/entries/leibniz-mind/>.

<sup>67</sup> see for example: Sheila C. Dow, “Beyond Dualism,” *Cambridge Journal of Economics* 14, no. 2 (1990): 143–57; Peter Gilgen, “Learning Not to Know: On the Colloquium beyond Dualism,” 1994; Tim Lenoir, “Beyond Dualism” (San Francisco: Stanford University, March 11, 1994); Judith Gerber, “Beyond Dualism – the Social Construction of Nature and the Natural and Social Construction of Human Beings,” *Progress in Human Geography* 21, no. 1 (February 1, 1997): 1–17; Moshe Farjoun, “Beyond Dualism: Stability and Change As a Duality,”

Dualism, as binary logic, has been considered an enemy of progressive rationality. Likewise it is increasingly common in architectural discourse to argue for the need to transcend the binary of rural and urban, and an increasing number of papers proclaim that we are now ‘Beyond Rural and Urban’.<sup>68</sup>

Yet as contemporary philosophers Deleuze and Guattari have written, “One does not escape binaryism...for such dyads are the basic elements of power.”<sup>69</sup> The notion of dualism is central to the thought of these philosophers, whose works are among those most commonly cited in the architectural discourse since the 1980’s, prompting the noted Deleuze and Guattari scholar Paul Patton to note:

*So many dualisms, so many sets of opposing categories might seem odd when the enemy is supposed to include, above all, binary logic...But this is a trap...since, after all, how could one ever escape the logic of oppositions? How could one think without drawing distinctions?...Hence the real question is one of tactics. Above all, it is not a matter...of eschewing dichotomies; it is rather a matter of how they are treated. None of these oppositions mentioned above can be taken as fixed; none should be regarded as drawing a line which must be defended at all costs. Philosophy is not...a war of positions; it is...a war of movement. Oppositions are therefore necessary, but only as staging points, places to hide or points from which to launch an attack...In this way, even our most respected dualisms are accorded only relative stability. Nothing is sacred, not science nor even ideology.*<sup>70</sup>

In Deleuze and Guattari’s own words, “We only invoke one dualism in order to refute another.”<sup>71</sup> Rather than attempting to ‘transcend dualism’, these philosophers propose the tactic of engaging entrenched or hegemonic binaries with additional, finer-grained binaries. They address the danger that reductive binaryism leads to a kind of *linear* thinking tied to presumed hierarchies, or sequences of

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*Academy of Management Review* 35, no. 2 (April 1, 2010): 202–25; Dan Roroniakewen Longboat, Andrejs Kulnieks, and Kelly Young, “Beyond Dualism,” in *Contemporary Studies in Environmental and Indigenous Pedagogies*, ed. Andrejs Kulnieks, Dan Roroniakewen Longboat, and Kelly Young (SensePublishers, 2013), 9–19; Shahe Emran, M, and Forhad Shilpi, “Beyond Dualism: Agricultural Productivity, Small Towns, and Structural Change in Bangladesh,” SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, January 1, 2017).

<sup>68</sup> See for example: John Friedmann, “Modular Cities: Beyond the Rural-Urban Divide,” *Environment and Urbanization* 8, no. 1 (April 1, 1996): 129–31; Graeme Hugo and Tony Champion, eds., *New Forms of Urbanization: Beyond the Urban-Rural Dichotomy* (Aldershot, Hants, England ; Burlington, VT: Routledge, 2003); James Garrett, “Beyond Rural Urban: Keeping up with Changing Realities” (Washington, D.C.: International Food Policy Research Institute, 2005); Kjell Andersson, Erland Eklund, and Minna Lehtola, eds., *Beyond the Rural Urban Divide: Cross-Continental Perspectives on the Differentiated Countryside and Its Regulation* (Bingley: Emerald Group Publishing Limited, 2012); Peter V. Schaeffer, Mulugeta S. Kahsai, and Randall W. Jackson, “Beyond the Rural–Urban Dichotomy,” *International Regional Science Review* 36, no. 1 (January 1, 2013): 81–96.

<sup>69</sup> Gilles Deleuze and Félix Guattari, “Rhizome.” Translated by Paul Patton in *Ideology and Consciousness: Power and Desire; Diagrams of the Social* 8 (1981): 40-71. As cited in Clayton Koelb and Virgil Llewellyn Lokke, *The Current in Criticism: Essays on the Present and Future of Literary Theory* (Purdue University Press, 1987), 222.

<sup>70</sup> Paul Patton, “Notes for a Glossary,” in *Deleuze and Guattari: Critical Assessments of Leading Philosophers*, ed. Gary Genosko, vol. 3 (New York: Taylor & Francis, 2001), 1095.

<sup>71</sup> As cited in Koelb and Lokke, *The Current in Criticism*, 222.

received rationalizations based on precedent – whether from nature (the imposition of analogy, for example the slavish imitation of the structure of a tree on the structure of a city) or from culture (their essay specifically addresses the structuralist texts of such philosophers as Freud, Marx, Chomsky, and Levi-Strauss)<sup>72</sup> – which they characterize as *arborescent* form, by identifying what they conceive as its opposite formal tendency, *rhizomatic* form, which in contrast is explicitly *nonlinear* and relatively non-hierarchic, and involves an “a-centered plane of existence which embraces multiplicities, collections, open-ended adjacencies, and, in short, utterly impermanent connections.”<sup>73</sup> In describing the need for these two alternative modes of thought, they reflect on the difference between historic traditions of thought, citing nature itself, and the structure of tree growth, to justify their effort to supplement a reductive, *linear* dualism with the *nonlinearity* of the rhizome:

*One becomes two: each time we encounter this formula, even understood strategically...or understood in the most ‘dialectical’ way possible, what we have before us is the most classical and well reflected, the oldest and weariest kind of thought. Nature doesn’t work that way: in nature, roots are taproots with a more multiple, lateral, and circular system of ramification, rather than a dichotomous one. [So] thought lags behind nature...[which] endlessly develops the law of the One that becomes two, then of the two that become four...Binary logic is the spiritual reality of the root-tree. Even a discipline as advanced as linguistics retains the root-tree as its fundamental image, and this remains wedded to classical reflection. For example, Chomsky and his grammatical trees, which begin at point S and proceed by dichotomy. This is as much as to say that this system of thought has never reached an understanding of multiplicity: in order to arrive at two following a spiritual method it must assume a strong principle unity.*<sup>74</sup>

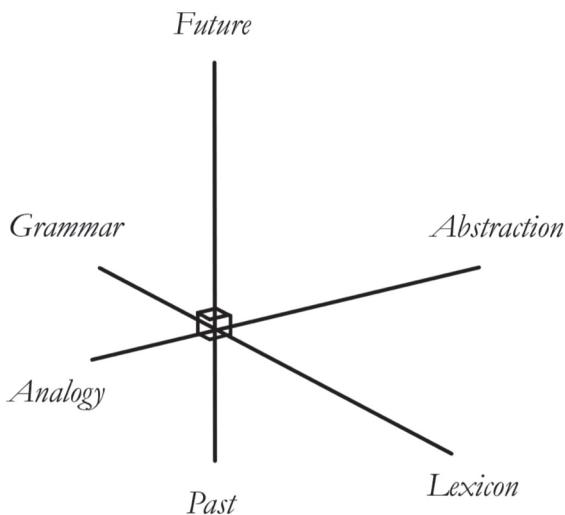
It is interesting that after making their analogy with nature, they cite linguistics as a field hampered by reductive thinking. This assertion seems open to debate – after all, language itself is comprised of the essentially dualistic structure of *grammar* (the rules of relations between words) and *lexicon* (the list of words employed), structural categories that coincide directly with the two fundamental modes of learning – *analogy* and *abstraction*, another essential duality. It seems like language might be as effective as it is at least in part because these four polarities usefully provide a kind of subconscious *compass* for our orientation in navigating life – a pretty open field of conceptual and experiential territory. One can imagine that a simple diagram might serve as a conceptual map – a three-dimensional variant on Chomsky’s *binary diagrams* – a provisional armature of this field.

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<sup>72</sup> Koelb and Lokke, 222.

<sup>73</sup> As cited in Koelb and Lokke, 221.

<sup>74</sup> Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 5–6.



To the dual linguistic binaries of *grammar / lexicon* and *analogy / abstraction* we might provisionally add a vertical axis for time – *past / future* – thereby providing a formal toehold for various modes of anthropological evidence to be provisionally evaluated. Taken together, these axes yield a kind of language compass – an orientation device for nonlinear navigation – bridging design and description, and providing an analogical model for design analysis.

And as to whether the discipline of linguistics itself is so problematic as Deleuze and Guattari's polemical take on Chomsky might lead us to believe, an interdisciplinary team of linguists, biologists, anthropologists and computer scientists – Noam Chomsky among them – recently seems to have confirmed the truth of it. And it is exactly for lack of compelling evidence that the discipline of linguistics is problematic at a fundamental level. Chomsky and his seven colleagues concluded that despite there having been 'an explosion of research on this problem' in the past 40 years, "The most fundamental questions about the origins and evolution of our linguistic capacity remain as mysterious as ever."<sup>75</sup>

*Understanding the evolution of language requires evidence regarding origins and processes that led to change... [and] there has been... a sense that considerable progress has been made [on obtaining this evidence]. We argue instead that the richness of ideas is accompanied by a poverty of evidence, with essentially no explanation of how and why our linguistic computations and representations evolved.<sup>76</sup>*

The discipline of linguistics is fundamentally retroactive, an analytical abstraction created so as to inform a theory of the use of language after the fact, while in practice living languages are constantly evolving and rely not at all on the efforts of linguists. And regarding their root-tree analogy, as it happens, many trees are both *arborescent* and *rhizomatic* – so nature does work that way, after all. Once again, despite the rhetoric employed by these philosophers, these two modes of thought and structure

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<sup>75</sup> Tom Wolfe, *The Kingdom of Speech* (London: Hachette, 2016), 5.

<sup>76</sup> Marc D. Hauser et al., "The Mystery of Language Evolution," *Frontiers in Psychology, Language Sciences*, 5 (May 2014): 1, <https://doi.org/10.3389/fpsyg.2014.00401>.

are perfectly compatible, and even mutually reinforcing. Which is, it seems to me, the broader point they succeed in making.

So what we can consider to be their genuine innovation in philosophic thought is in fact common knowledge in linguistics, as in biological and ecological thought. And, in fact, their essentially insightful observations were anticipated by the *I Ching* itself in a very obvious way, describing as they do how all material and phenomena are the result of diverse dualities. How profoundly poetic, then, to recognize that the Chinese character for ‘beauty’ is itself the combined symbols for ‘unity’ and ‘variety’. I intend to demonstrate that despite occasional lapses into ‘mere rhetoric’ the utility of the explicitly nonlinear tactic they advocate is consistent with enduring traditions and with progressive innovations alike – supplementing vertical, ‘top-down’ dualities with horizontal, ‘bottom-up’ dualities, and thereby discerning our orientation.

#### *iv. Beyond Rationality: The Nonlinear Paradigm*

And so the pendulum swings. Clearly polemics, as a form of rhetoric, can be deployed to narrowly partisan ends, or can be meaningfully employed as discourse. While the hegemony of *urbanism* appears to be yielding to a broader disciplinary interest in regional context – towards *ruralism* – urbanists have tended to uncritically adopt the urbancentric and frankly colonial terminology of rural as ‘hinterland’<sup>77</sup> – even, rather disturbingly, adopting the characterization of rural inhabitants as ‘peasants’<sup>78</sup> – and regarding the rural countryside as merely another location of resources for ‘global’ or ‘planetary urbanization’.<sup>79</sup>

The physicist Richard Feynman has described the relationship between a researcher and their research question with an anecdote. He says that if she comes across a river, she may have an idea about the source of the river, its origin – hypothesizing that it is a spring, for instance. But if she is really curious and wants to actually determine the origin of the spring, to test his hypothesis and to know for sure, she can do a little research and follow the river upstream to determine its origin. Now if she finds that the origin isn’t a spring, but a lake, or mist, or something else, she may be a little bit disappointed that her hypothesis was wrong. But if she was curious to begin with, then she is even

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<sup>77</sup> Douglas Kerr, *Eastern Figures: Orient and Empire in British Writing*, (Hong Kong University Press, 2008), 11. n. Kerr: area behind a coast or the shoreline of a river. Specifically, by the doctrine of the hinterland, the word is applied to the inland region lying behind a port and is claimed by the state that owns the coast. More generally, hinterland can refer to the rural area economically tied to an urban catchment area. The size of a hinterland can depend on geography, or on the ease, speed, and cost of transportation between the port and the hinterland. [Also see Allan Woodburn, Hinterland Connections to Seaports, unece.org, January 23, 2009.]

<sup>78</sup> Michael Kearney, *Reconceptualizing The Peasantry: Anthropology In Global Perspective* (Boulder, Colo: Westview Press, 1996).

<sup>79</sup> Neil J. Brenner, ed., *Implosions/Explosions: Towards a Study of Planetary Urbanization* (Jovis, 2014).

more curious now – curious to learn about how it came to be the way that it is. So for Feynman it is the motivation born of genuine curiosity that opens the way to useful research.<sup>80</sup>

Dualism, polemics, and rhetoric are modes of thought and exchange with a proven utility to advance discourses. But rather than conceiving of them as the means by which to go ‘beyond’ such meaningful distinctions as rural/urban, or nature/culture, I intend to demonstrate that they retain their relevance, and even become more relevant in advocating for the plurality of values necessary to the nonlinear paradigm. I propose to situate *civic design* as a space of continuity with varied proportions, a *territorial figure* mediating between *urban* and *rural*, clarifying and accentuating the qualities of each. As Sébastien Marot has written, opposing positions can be seen as ‘opposite, but not necessarily exclusive of one other.’<sup>81</sup> Oppositions are rather to be implicitly regarded as potentially coincident options within a broader context, their complementary qualities reinforcing one another by their strength of contrast.

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<sup>80</sup> Richard P. Feynman, *The Pleasure of Finding Things Out: The Best Short Works of Richard P. Feynman*, 1st ed. (New York: MJF Books, 1999).

<sup>81</sup> Sébastien Marot, *Sub-Urbanism and the Art of Memory* (London: AA Publications, 2003).

## 1 DESIGN ANALOGY

### 1.1 PERIODICITY: Fundamental Polarities from Science to Art

#### 1.1.1 Two Way Systems - Analogy and Polemicism in Science and Art

*On the deliberately polemic criticism of Newton's 'one way' cosmology by subsequent generations, as informed by analogical thinking and exchanges between science and art, considering the virtues of systems theory and the holistic dualism of periodic phenomena from wavelengths to landscapes, deriving some implications for constructive polemics.*

*To see a World in a Grain of Sand*

*And a Heaven in a Wild Flower*

*Hold Infinity in the palm of your hand*

*And Eternity in an hour*

- William Blake, *Auguries of Innocence* (1803) 1863

#### i. Introduction

An ecological worldview envisions individuals as part of a larger whole, or the whole as an enlarged self. Current philosophy and contemporary research into the physical environment and the life of organisms reveal dualities nested within dualities. The historic co-development of arts and sciences, and the polemic exchanges between them, have been both fruitful and occasionally destructive. Scientific discoveries tend to be employed for military ends, from Archimedes (ca.270-211 BC) to the Manhattan Project (1942-46), and the negative ecological and social impacts resulting from such aggressive militarism often counteracts its utility in the long term, making it a threat to the very communities that support it. When scientists become technical enablers of economic, social, or environmental injustice it is rightly considered the exploitation of science. As with artists advocating such unjust exploitation, they are recognized as propagandists.

Yet the fruitful exchanges between artists and scientists – sometimes holistically in the same person, as with the archetypal Renaissance *man* – have served to advance and ensure greater justice. The thinking employed in these exchanges between expert and non-expert tends toward the *analogical* rather than the *analytical*, the *relational* rather than the *rational*, and therefore is necessarily a kind of 'loose fit', to use Richard Sennett's term. These intergenerational exchanges reveal the practical value of analogy in being approximately right rather than precisely wrong, yielding just principles that can be usefully adopted as design heuristics. As Samuel Butler has written, "*Though analogy is often misleading, it is the least misleading thing we have.*"<sup>82</sup>

In this chapter several instances of intergenerational polemics between science and art are considered – emphasizing the mutual benefit of the exchanges while identifying tendencies toward one-sidedness – arriving at two Swiss scientists whose holistic views provide a common ground for the

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<sup>82</sup> *The Notebooks of Samuel Butler*, ed. Henry Festing Jones (New York: E.P. Dutton, 1917), 94.

arts and sciences. This common ground is revealed to be the territory of *systems theory* – the transdisciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence. Systems theory investigates the principles common to all complex entities, and the models that can be used to describe them.<sup>83</sup> In the sciences, these models are usually mathematical, while in the arts they are social and formal. Among the systems addressed in this chapter are the *color systems* of Isaac Newton and Goethe (p.24), Walter Russell's '*cyclical systems of wave periodicities*' (p.30), the pedologist Hans Jenny's '*coupled systems of soil and environment*' (p.38), the physician Hans Jenny's '*neurological and locomotive systems*' (p.42) – and the latter's careful distinction between '*analogy*' (a correspondence or partial similarity) and '*homology*' (the state of having the same structure) in the comparison of these systems (p.43) – finally arriving at the formal embodiment of *systems theory* in regional *park systems*, the first example of which is again provided by Goethe. (p.51)

#### *ii. Blake (1757–1827) vs. Newton (1643-1727)*

The century following the death of René Descartes was described in retrospect as both *The Age of Enlightenment* and as the *Scientific Revolution* (ca.1650-1750).<sup>84</sup> The term 'enlightenment' is the English equivalent of the French term 'lumières', first used by Jean-Baptiste Dubos in 1733; its popular use was well established by 1750.<sup>85</sup> In the *intergenerational oscillation* that followed, the pendulum of enthusiasms swinging from science to art, Enlightenment thinking gave way to the Romantic Era (ca.1750-1850). Genevan philosopher and pacifist Jean-Jacques Rousseau (1712-1778) effectively inaugurated the era with his *Discourse on the Arts and Sciences* (1750),<sup>86</sup> in which he presents 'a scathing attack on scientific progress', arguing that the sciences – like military conquests – are morally corrosive.<sup>87</sup> Rousseau was, in Simon Schama's words, "*in double revolt against both the traditional authority of the classical and the Enlightenment rationality that claimed to supersede it.*"<sup>88</sup> Following Rousseau, William Blake's 'aggressive anti-Newtonianism' anticipated 'the Romantic denunciation of science' characterized by a widespread skepticism of the claims of science – as critically expressed by the likes of Novalis (1772-1801), Wordsworth (1770-1850), Coleridge (1772-1834) and Shelley (1792-1822)<sup>89</sup> – prompting one of

<sup>83</sup> Francis Heylighen and Joslyn Cliff, "Systems Theory," in *The Cambridge Dictionary of Philosophy*, ed. Robert Audi, 2nd ed. (Cambridge: Cambridge University Press, 1999).

<sup>84</sup> Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2nd edition (Chicago, Ill: University of Chicago Press, 1970).

<sup>85</sup> Jean-Baptise Dubos, *Réflexions Critiques Sur La Poésie et Sur La Peinture* (Paris: aux Colonnes d'Hercule, 1733).

<sup>86</sup> Jean-Jacques Rousseau, *Extrait du projet de paix perpétuelle de Monsieur l'abbé de Saint-Pierre* (Amsterdam: Chez Marc Michel Rey., 1756).

<sup>87</sup> Jeff J. S. Black, *Rousseau's Critique of Science: A Commentary on the Discourse on the Sciences and the Arts* (Lanham, MD: Lexington Books, 2009), 84, note: This line of thought has important implications for the modern democratic tradition of questioning political commitment to scientific progress, and was further elaborated by Rousseau in his pedagogical novel *Emile, or On Education* (1762).

<sup>88</sup> Simon Schama, *Landscape and Memory* (New York: Knopf, 1995), 550.

<sup>89</sup> Frederick Burwick, *The Damnation of Newton: Goethe's Color Theory and Romantic Perception* (Walter de Gruyter, 1986), 8.

Newton's biographers to conclude that with the close of the eighteenth century came an end to the intimacy of science and art,<sup>90</sup> stating, “*William Blake presided at the poetic damnation of Sir Isaac Newton.*”<sup>91</sup>

William Blake lived and worked in the metropolis of London at a time of profound social and political change. The year before Blake's birth European powers and their colonies were engaging in the *Seven Years' War* (1756-1763) – a conflict fought across five continents: Europe, the Americas, West Africa, and Asia (in India and the Philippines). The unprecedented geographic range of the war was such that Winston Churchill later called it ‘the first world war’.<sup>92</sup> Indeed, this conflict was known as the *French and Indian War* (1754-1763) in North America, and by other names in other places. The *Treaty of Saint Petersburg* ended hostilities between Russia and Prussia in 1762, the same year France and Spain signed the *Treaty of Fontainebleau*<sup>93</sup> – a secret agreement in which France ceded the Louisiana Territory to Spain (an area encompassing the entire Mississippi River valley watershed, from the Appalachian Mountains to the Rocky Mountains) – the secrecy of which treaty was maintained even during the negotiation of the *Treaty of Paris* the following year, which involved another series of complex colonial land exchanges and concluded the Anglo-French conflict.

When the peace was established in 1763 the British Empire seemed secure – the colonies provided the empire with newfound wealth, supporting the first stages of an *industrial revolution* that enabled Britain to outpace every rival and become the pre-eminent world power for years to come.<sup>94</sup> The industrial revolution is generally considered to have begun in 1750, at the close of the *scientific revolution*. It is worth noting that in Britain the scientific revolution and the *agricultural revolution* were parallel phenomena, taking place between roughly between 1750 and 1850. The agricultural revolution has been credited as a primary cause of the industrial revolution, given that it brought about an unprecedented increase in labor and land productivity, and this rise in productivity accelerated the centralized accumulation of wealth and the exodus of the agricultural labor force from *rural* to *urban* areas.<sup>95</sup> These displaced rural inhabitants were to become the urban workforce necessary for industrialization. Textile industries were transformed by the invention of the spinning Jenny in 1764

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<sup>90</sup> Marjorie Hope Nicolson, *Newton Demands the Muse: Newton's Opticks and the Eighteenth Century Poets* (Princeton, N.J.: Princeton University Press, 1946).

<sup>91</sup> Marjorie Hope Nicolson, “Newton's Optiks and Eighteenth-Century Imagination,” *Dictionary of the History of Ideas* (New York: Scribner's Sons, 1974), 398.

<sup>92</sup> Paul M. Kennedy, *The Rise and Fall of British Naval Mastery* (Scribner, 1976), 98–107, as cited in; H. V. Bowen, *War and British Society 1688-1815* (Cambridge University Press, 1998), 7.

<sup>93</sup> Simon Schama, *Landscape and Memory* (New York: Knopf, 1995), 17, n. In addition to being of political interest, the forest at Fontainebleau provides an important historic design precedent relating pedagogy, design and policy.

<sup>94</sup> Kennedy, *The Rise and Fall of British Naval Mastery*, 98, n. The causes of the war were so obscure-or obscured-that the novelist Thackeray wrote, in 1844: "It would require a greater philosopher and historian than I am to explain the causes of the famous Seven Years' War in which Europe was engaged; and, indeed, its origin has always appeared to me to be so complicated, and the books written about it so amazingly hard to understand, that I have seldom been much wiser at the end of a chapter than at the beginning, and so shall not trouble my reader with any personal disquisitions concerning the matter".

<sup>95</sup> Mark Overton, *Agricultural Revolution in England: The Transformation of the Agrarian Economy 1500-1850* (Cambridge University Press, 1996), 206.

(by Hargreaves), and the power loom in 1787 (by Cartwright) – deepening the exploitation of colonial cotton plantation slaves – while Watt’s steam engine (ca.1760) had accelerated the creation of a new intermodal network of roads, canals, and railroads for commercial distribution.

So it was in this heady atmosphere that Blake spent his childhood, loving justice, hating war and slavery – and cultivating a critical awareness of the role *science* and *religion* played in enabling those unjust institutions. Following the American Revolution (1765-83) and the French Revolution (1789-99) it was widely felt that that the individual’s relationships to the state and to the church had changed forever. Pacifist, poet, and painter, Blake worked to advance a change in the social order by advocating for a radical kind of individualism that anticipated the ecological worldview, envisioning individuals as part of a larger whole, and the whole as an enlarged self. Blake asserted that ‘the individual and the collective are on the same continuum,’ and he sought to ‘see one in many and many in one.’<sup>96</sup> His defense of ‘individual merit’ against the ‘maw of commerce’ is an argument against a system of production in which a work of art ‘reproduces the class structure that produces it.’<sup>97</sup>

Adopting this line of argumentation was to thrust Blake into a polemic confrontation with the entire military-industrial paradigm, predicated on what he called ‘Single vision & Newton’s sleep’.<sup>98</sup> Blake had penned this loaded and memorable phrase in a letter to a friend:

Now I a fourfold vision see  
And a fourfold vision is given to me  
Tis fourfold in my supreme delight  
And three fold in soft Beulah’s night  
And twofold Always. May God us keep  
From Single vision & Newton’s sleep.<sup>99</sup>

Blake’s monotype print *Newton* (1795-1805) illustrates this critique, showing Newton preoccupied with his abstract diagrams while apparently oblivious to the mysterious beauty of the nature surrounding him. Blake was critical of the ‘Newtonian’ mindset, associating it with the commercial scientific paradigm advocated by proto-military-industrial interests, going so far as to write, “Art is the Tree of Life. Science is the Tree of Death.”<sup>100</sup>

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<sup>96</sup> Saree Makdisi, *William Blake and the Impossible History of the 1790s* (University of Chicago Press, 2007), 174.

<sup>97</sup> Makdisi, 175.

<sup>98</sup> Donald D. Ault, *Visionary Physics: Blake’s Response to Newton* (Chicago: The University of Chicago Press, 1974), xi.

<sup>99</sup> William Blake, “Letter to Thomas Butts, 22 November 1802,” in *Letters from William Blake to Thomas Butts 1800-1803*, ed. Geoffrey Keynes (Oxford: Clarendon Press, 1926).

<sup>100</sup> Burwick, *The Damnation of Newton*, 8.



[fig.1 – William Blake, *Newton*, c.1795-1805] Image: Courtesy Tate Museum, Creative Commons

Through polemic assessments like this he sought to evoke the multiple, nonlinear significances of everything – quite literally – but ultimately called for the union of art and science, writing,

*What is man but Art and Science? Answer this to yourselves, and expel from among you those who pretend to despise the labours of Art and Science.*<sup>101</sup>

Blake did not oppose science itself, but rather he opposed the uncritical popularization of a one-sided science divorced from art – “generalizing art and science until art and science are lost.”<sup>102</sup> He criticizes as incomplete Newton’s argument in *Optiks* that all matter may be transformed into light – a stunning insight later confirmed by Einstein’s famous equation  $E=mc^2$  – by pointing out that it must also be transformed back again.<sup>103</sup>

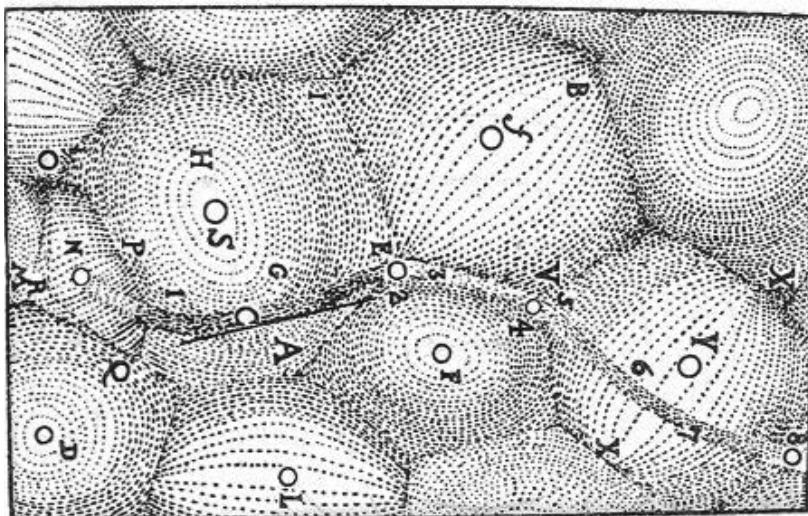
‘All scientific revolutions entail a shift of worldview,’ Thomas S. Kuhn has famously argued – but while an ascendant paradigm might allow for the perception of things that previously went unnoticed, that paradigm also tends to exclude much from perception that had previously been

<sup>101</sup> Ault, *Visionary Physics*, n. As cited in Burwick p.8.

<sup>102</sup> Ibid.

<sup>103</sup> Ault, 144.

considered relevant.<sup>104</sup> Blake thus criticizes the ‘infinite and constrained universe’ of Newton’s worldview as the ‘worst of abstractions’, and Newton’s ‘natural religion’ of scientific materialism as ‘sterile.’<sup>105</sup> As a counterproposal Blake advocates a cosmology of *vortices*, a compelling new interpretation of the *vortex theory* with which René Descartes (1596-1650) had similarly confronted the clockwork, linear model of Nicolaus Copernicus’s (1473-1543) cosmology, and that had ultimately supplied Descartes with his early explanation for the forces of attraction.<sup>106</sup> This is noteworthy, as Descartes’s vortex theory was a highly intuitive model of celestial phenomena that was compatible with mechanical philosophy and provided an explanation for the common direction of all planetary orbits, so it was long regarded as superior to Newton’s theory of universal gravitation since it did not require the invention of a mysteriously one-sided, occult quality – *gravity* – as the cause of planetary orbits and the *earthboundedness* of terrestrial objects.<sup>107</sup> Likewise, the vortex theory allowed Descartes to endorse a form of Copernicanism (i.e., sun-centered world) without prompting church censorship. But neither Descartes nor his followers ever developed a systematic mathematical treatment of the vortex theory, and by Blake’s time the Newtonian worldview – convincingly demonstrated with accurate mathematical representation of the planetary motions – had come to dominate both scientific and popular thought.<sup>108</sup> Nevertheless, will come across several further developments *vortex theory* – in opposing the ‘Single Vision’ of Newton, Blake was by no means alone.



[fig.2 - Descartes's *vortices* diagram, *Principia Philosophiae* (1644)]

<sup>104</sup> Kuhn, *The Structure of Scientific Revolutions*, 15.

<sup>105</sup> Samuel Foster Damon, *A Blake Dictionary: The Ideas and Symbols of William Blake* (UPNE, 1988), 296, n.

“Double Vision” for Blake is evidently inclusive of the aforementioned four-fold vision derived from imagination and inspiration.

<sup>106</sup> Edward Slowik, “Descartes’ Physics,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Summer 2014 (Metaphysics Research Lab, Stanford University, 2014), <https://plato.stanford.edu/archives/sum2014/entries/descartes-physics/>.

<sup>107</sup> Ibid.

<sup>108</sup> E. J. Aiton, *The Vortex Theory of Planetary Motions* (Macdonald, 1972), 261. n. Vortex theory will be returned to later in the chapter, as it is taken up by subsequent protagonists.

### *iii. Goethe (1749–1832) vs. Newton (1643-1727)*

William Blake and Wolfgang von Goethe are widely regarded as the most ambitious poet-thinkers of the Romantic era.<sup>109</sup> They were contemporaries, and while they are not known to have met, or to have corresponded – or even to have read one another’s works<sup>110</sup> – nevertheless, at a number of points their personal and intellectual paths are strikingly similar, and perhaps none more so than in their criticism of Newton.<sup>111</sup> In both cases their critique centered on what they perceived to be the incompleteness – or one-sidedness – of Newton’s cosmology.

Certainly Goethe was himself an uncommonly multifaceted person, as is suggested by a short list of his activities and accomplishments: he was active as a painter, a scholar, and a theater director and manager; he served as a director of universities and museums; he was also a capable administrator responsible for parks,<sup>112</sup> forests, mines, and roads; he was a diplomat and minister of state; finally, he was a scientist and patron of science and technology, with notable publications in a number of fields including anatomy and botany.<sup>113</sup> Exemplifying the mode of heuristic reasoning being developed in this research, in Goethe’s *Maxims and Reflections*, published the year after his death, he wrote, “People say: Between two opposed opinions the truth lies in the middle. Not at all! Between them lies the problem, what is unseeable, eternally active life, contemplated [gedacht] in repose.”<sup>114</sup> Speaking to his own intergenerational polemics he states, “We praise the eighteenth century for concerning itself chiefly with analysis. The task remaining to the nineteenth is to discover the false syntheses which prevail, and to analyse their contents anew.”<sup>115</sup> Elsewhere he writes, “[I] have thought about fiction and science. The disaster they cause comes from the need of reflective reason, which creates for its own use a sort of image, but thereafter sets it up as true and concrete.”<sup>116</sup> Goethe’s charge against Newton was essentially that he had portrayed as fact what was still unproven hypothesis. To be fair to Newton, both Blake’s and Goethe’s critiques came long after he had died, and he himself had maintained that science was an intergenerational endeavor, writing, “To explain all nature is too difficult a task for any

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<sup>109</sup> Martin Bidney, *Blake and Goethe: Psychology, Ontology, Imagination*, (Columbia: University of Missouri Press, 1988).

<sup>110</sup> Christopher Thacker, *The Wildness Pleases: The Origins of Romanticism* (Routledge, 2016), 241.

<sup>111</sup> Christopher John Murray, *Encyclopedia of the Romantic Era, 1760-1850* (Taylor & Francis, 2004), 949–50, note: Blake and Newton are known to have had some friends in common, however—namely the English diarist Henry Crabb Robinson (1775–1867), who is known to have repeatedly visited Goethe in Weimar (where in 1829 he tried to persuade Goethe of Wordsworth’s greatness as a poet), and to have frequently visited Blake from 1810–1827 (although he evidently considered Blake to be insane, he wrote articles on him for German periodicals, and provided valuable information to Blake’s first biographer, Alexander Gilchrist).

<sup>112</sup> “Park an Der Ilm,” *Wikipedia*, November 2, 2016, n. We will return to Goethe’s work on this early park system at the end of the chapter, and address the project in greater depth in *2\_Civic Design*.

<sup>113</sup> Dennis L. Sepper, *Goethe Contra Newton: Polemics and the Project for a New Science of Color* (Cambridge: Cambridge University Press, 1988), 2.

<sup>114</sup> Johann Wolfgang von Goethe, *The Maxims and Reflections of Goethe*, trans. T. Bailey (Thomas Bailey) Saunders (New York, London: Macmillan Co., 1893), no.616, as cited in; Sepper, *Goethe Contra Newton*, ix.

<sup>115</sup> Goethe, *The Maxims and Reflections of Goethe*, 198, no.568.

<sup>116</sup> Sepper, *Goethe Contra Newton*, vi.

one man, or even for any one age.”<sup>117</sup> Nevertheless, Newton’s publication of *Opticks* in 1704 did revolutionize the study of color, and established the foundation of modern optics as an objective science.<sup>118</sup> But what concerned Goethe, beyond the physics of color, was the physiology of sight as an experienced phenomenon. In taking up this polemic his objectives were therefore to be scrupulously attentive to the phenomena of color, and to gain insight into the complex relations between these phenomena and the ways we speculate about them.<sup>119</sup>

The poet published his *Theory of Colors* (*Zur Farbenlehre*) in 1810<sup>120</sup>, deliberately framing his argument as an attack on Isaac Newton’s *Opticks* of a hundred years prior.<sup>121</sup> His fundamental insight was prompted by his direct experience, a chance observation that spurred him to contradict Newton and initiate his investigation into the origins of color: after gazing at a color and then closing his eyes, the afterimage was not the color he had seen but was rather – he speculated – its opposite. From this starting point, Goethe developed his color wheel, the first to arrange complementary colors in opposing fashion – or as he described it, as symmetric arrangement with ‘reciprocally evoked colors’, “...for the colors diametrically opposed to each other... are those that reciprocally evoke each other in the eye.”<sup>122</sup> Based on his direct experience, therefore, Goethe conceived that, “Considered in a general point of view, color is determined towards one of two sides. It thus presents a contrast which we call a polarity, and which we may fitly designate by the expressions *plus* and *minus*”<sup>123</sup> – which he illustrated with the following table:

| <i>Plus.</i>         | <i>Minus.</i>          |
|----------------------|------------------------|
| Yellow.              | Blue.                  |
| Action.              | Negation.              |
| Light.               | Shadow.                |
| Brightness.          | Darkness.              |
| Force.               | Weakness.              |
| Warmth.              | Coldness.              |
| Proximity.           | Distance.              |
| Repulsion.           | Attraction.            |
| Affinity with acids. | Affinity with alkalis. |

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<sup>117</sup> Sepper, vi.

<sup>118</sup> Isaac Newton, *Opticks : Or, A Treatise of the Reflections, Refractions, Inflections and Colours of Light* (London: William Innys at St. Paul’s West-End, 1704).

<sup>119</sup> Sepper, *Goethe Contra Newton*, ix.

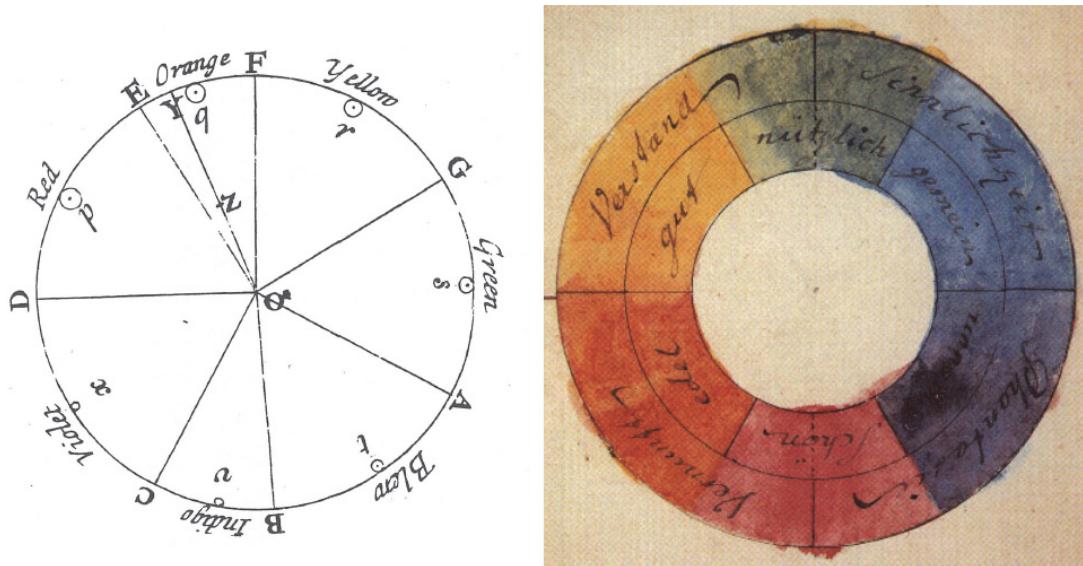
<sup>120</sup> Ibid., n. Curiously, when translated into English in 1840 the polemic against Newton, the second of the book’s three sections, was omitted.

<sup>121</sup> Sir Isaac Newton, *Opticks: Or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light*, 1952nd ed. (New York: Dover, 1704).

<sup>122</sup> Goethe, *Theory of Colours*, 21.

<sup>123</sup> Ibid., 276, n. The German terms Goethe used for “action” and “negation” are *wirkung* and *beraubung* - the latter of which would be more literally rendered *privation*. Goethe made frequent use of the terms ‘active and passive’ as equivalents to ‘plus and minus’.

The poet further observed that Newton had neglected to note the spectrum revealed at the edge of light and shadow, and supplemented Newton's 'one-sided' spectrum with the pastel spectrum. In contrast to the emphasis customarily given to the seven colors of the Newtonian spectrum (Red, Orange, Yellow, Green, Blue, Indigo, Violet) Goethe's chapter on physiological colors presents three principal pairs of opposite (later termed 'complementary') colors - red/green, orange/blue, and yellow/violet – each of which are experienced contextually on a gradation from black to white.<sup>124</sup>



[fig.3\_The Color Wheels of Newton and Goethe] *Left*, the color circle of Newton (from Newton, *Opticks*, 1<sup>st</sup> ed., [London, 1704] Book 1, Part 2, Figure 11 from Plate 3); *right*, the color circle of Goethe, with associated symbolic qualities (from Goethe, *Zur Farbenlehre*, [Tübingen, 1810] The scheme illustrates the chapter "Allegorical, symbolic, mystical use of color") Inscription (inner ring) [red] "beautiful" [orange] "noble" [yellow] "good" [green] "useful" [blue] "common" [violet] "unnecessary" (outer ring) [red-orange] "reason" [yellow-green] "mind" [green-blue] "sensuality" [violet-red] "fantasy". Images: Freie Deutsches Hochstift - Goethe Museum

This highly original book is generally regarded as the first systematic study of the *physiological* effects of color, and while it did not find universal favor among scientists of his time his theory anticipated an array of insights that were only scientifically confirmed in the 20<sup>th</sup> century. Goethe's work inspired his young colleague Arthur Schopenhauer to write *On Vision and Colors*<sup>125</sup> – subsequent to his dissertation, *On the Fourfold Root of the Principle of Sufficient Reason*,<sup>126</sup> which itself embodies a number of confirmations of Blake's 'fourfold-vision'. Among other noteworthy impacts Goethe's work subsequently informed German physiologist Ewald Hering's (1834-1918) *opponent-process theory* in 1878 – a psychological and neurological model accounting for a wide range of behaviors, including color vision<sup>127</sup> – which was

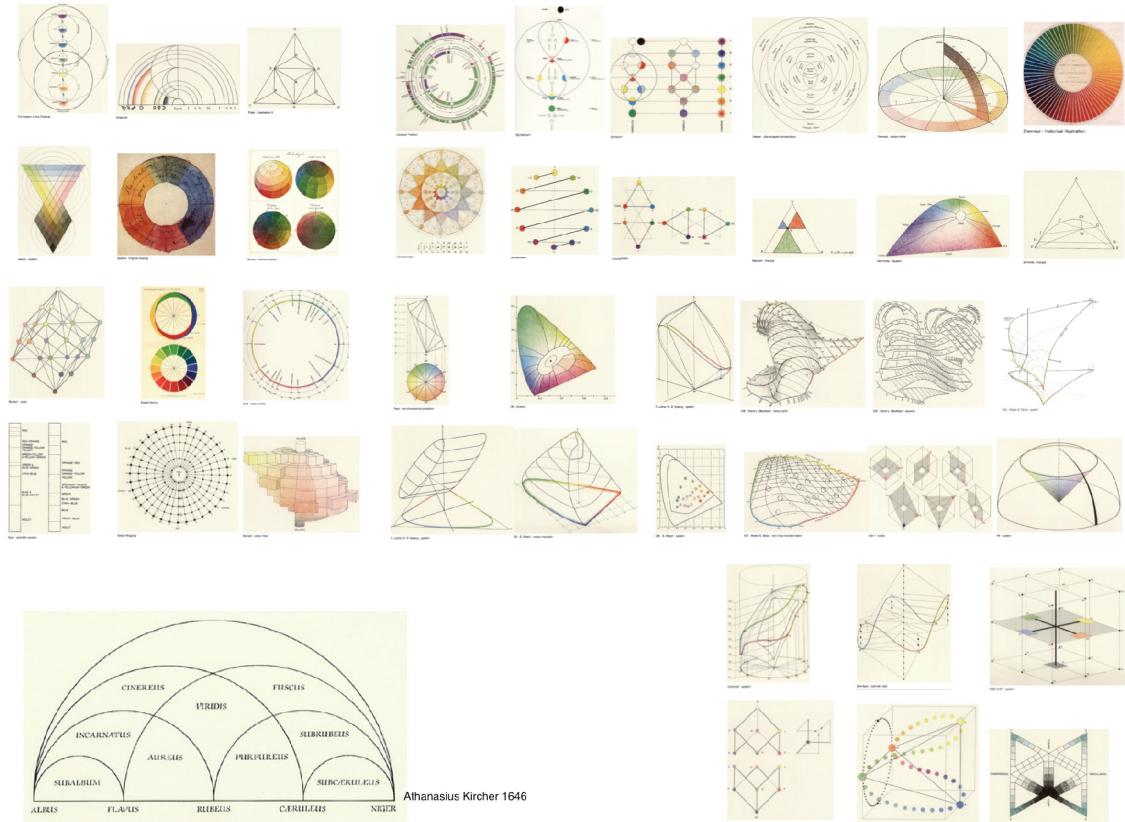
<sup>124</sup> Sepper, *Goethe Contra Newton*, 12.

<sup>125</sup> Arthur Schopenhauer, *On Vision and Colors*, trans. Georg Stahl, 1 edition (New York: Princeton Architectural Press, 2010).

<sup>126</sup> Arthur Schopenhauer, *On the Fourfold Root of the Principle of Sufficient Reason*, trans. E. F. J. Payne, 1St Edition edition (Open Court, 1999).

<sup>127</sup> Ewald Hering, *Outlines of a Theory of the Light Sense* (Cambridge: Harvard University Press, 1964).

itself again taken up in the 20<sup>th</sup> century and found to usefully address such disparate fields as biology,<sup>128</sup> behavior,<sup>129</sup> and computer vision, an interdisciplinary field which is concerned with the theory behind artificial systems that extract information from images.<sup>130</sup> Visible light is now understood to be a relatively narrow band of the wider electromagnetic spectrum, and depending on the medium of reproduction – print, digital, or textile using CMYK, RGB, and CIE color systems, respectively – technical descriptions of it will differ. There are now no fewer than 60 existing models of color analysis, each of which addresses a distinct purpose.<sup>131</sup>



[fig.4\_60 color models] Images: Prof. lic. phil. Urs Baumann and Prof. Narciso Silvestrini, KontextWissenschaft, Zurich

In *Goethe Contra Newton: Polemics and the project for a new science of color*, Dennis Sepper writes,

*If Goethe were alive to see the sciences today, he would approve of the vast cooperative effort, the manifold approaches, the theoretical variety, the exact specification of experiments, the refinement of instruments, and the vigor of communication and debate. In short, he is not the proponent of antimodern science he is often portrayed as; in fact, I believe that the natural sciences have in some respects been reorganized in*

<sup>128</sup> Emanuel R. N. Grigg, *Biologic Relativity* (Chicago: Amaranth Books, 1967).

<sup>129</sup> R.L. Solomon and J.D. Corbit, “An Opponent-Process Theory of Motivation: I. Temporal Dynamics of Affect,” *Psychological Review* 81, no. 2 (1974): 119–45.

<sup>130</sup> T. Huang, “Computer Vision,” ed. Carlo Vandoni, *19th CERN School of Computing*, 1996, 21–25, <https://doi.org/10.5170/CERN-1996-008.21>.

<sup>131</sup> Narciso Silvestrini, *Idea Colour* (Zurich: Baumann & Stromer, 1994), [www.colorsistem.com](http://www.colorsistem.com).

*ways that he hoped would come about (most important, perhaps, being the intensive cooperation of communities of researchers). But it is clear, too, that Goethe, looking upon present-day work, would remind us not to let theories obscure what we actually see, or forget that our ultimate goal [as scientists] is comprehensive fidelity to nature...Although we may not achieve complete commensurability between their different ways of conceiving things, we can establish a common ground that presupposes not consensus but rather the ability of human beings to talk with and learn from each other. I emphasize this common ground because it is something that the opposing sides in the controversy have rarely, if ever, achieved.<sup>132</sup>*

This sentiment reflects what might be the most remarkable review of the Newton/Goethe polemic, that undertaken by the German theoretical physicist Werner Heisenberg (1901-1976) – best known for his *uncertainty principle*, introduced in 1927, which states that the more precisely the position of some particle is determined, the less precisely its momentum can be known, and vice versa – who was a key figure in the birth of the ‘new physics’: the scientific revolution from a linear to a nonlinear paradigm. Heisenberg asserted that Goethe’s work, in particular, was found to be relevant to the quantum theory of the new physics. In a lecture Heisenberg acknowledged Goethe’s ‘fight for a more *living* science in the field of color theory’, as he explains,

*...the decision on ‘right’ and ‘wrong’ in all questions of detail has long since been taken. Goethe’s color theory has in many ways born fruit in art, physiology and aesthetics. But [popular] victory, and hence influence on the research of the following century, has been Newton’s...It is clear to all who have worked more recently on Goethe’s and Newton’s theories, that nothing can be gained from an investigation of their separate rights and wrongs. It is true that a decision can be taken on all points of detail and that, in the few instances where a real contradiction exists, Newton’s scientific method is superior to Goethe’s intuitive power, but basically the two theories simply deal with different things.<sup>133</sup>*

Heisenberg goes on to conclude that it is necessary to continue Goethe’s struggle against the physical theory of color on an extended front, explaining that from manifold physical phenomena science singles out a finite and limited field, and that the most serious task facing science is to find the appropriate sciences for the various fields and aspects of reality, stating, “Dividing reality in this way into different aspects immediately resolves the contradictions between Goethe’s and Newton’s theories of color. In the great structure of science, the two theories take up different positions.”<sup>134</sup> Sepper points out that while Heisenberg’s 1941 lecture ‘still expresses the mainstream of scientific opinion’

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<sup>132</sup> Sepper, *Goethe Contra Newton*, xi.

<sup>133</sup> Werner Heisenberg, *Philosophic Problems of Nuclear Science: Eight Lectures* (Faber and Faber, 1952), 60–64.

<sup>134</sup> Heisenberg, 75.

about Goethe's polemic with Newton, the question of "how Goethe's struggle might be continued has nevertheless received very little attention."<sup>135</sup>

Yet perhaps Heisenberg left a clue: in arriving at his conclusion, Heisenberg had argued that Goethe's contrasts and symmetries anticipated the modern mathematical theory of symmetry – a foundation of physicist's Standard Model, developed from the early 1970s. This assertion has more recently been further developed with the theory of *supersymmetry*, an extension of the Standard Model that predicts a partner particle for every particle.

#### *iv. Supersymmetry vs. E8 Pattern*

The theory of *supersymmetry* provides a vivid example of the principles of dualism: every elementary particle that constitutes matter has its opposite - particle or anti-particle, left-handed or right-handed, spin up or spin down. These matter particles are known as fermions (including leptons, neutrinos, electrons, and quarks) and are likewise matched by force transmitting particles known as bosons (photons, gluons, gravitons, Higgs, etc.) – all of these together comprise the so-called ‘quantum zoo’, in which, until recently, there were 36 confirmed fundamental particles. Of these 12 are force transmitting and 24 are matter particles. Recent confirmation of the Higgs boson particle – first suggested by Peter Higgs in the 1960s – now makes that total 37.<sup>136</sup>

To enumerate them, briefly: among fermions there are 6 quarks and their antiparticles, 6 leptons (the electron and neutrinos) and their antiparticles, and 13 bosons (12 force carriers and the Higgs boson). Having agreed that there are conventionally understood to be 37 elementary particles, it is worthwhile to acknowledge that some physicists, arguing that there are 18 different quarks rather than just 6, assert that there are actually 61. And there may be more.

The search to determine how many more elementary particles there are, and where to look for them, provides one of the most striking contemporary confirmations of the principles of dualism. In 2007 physicist Garrett Lisi published ‘An Extremely Simple Theory of Everything’, mapping all those known varieties of elementary particles onto a mathematical figure from 1888 known as the E<sub>8</sub> pattern. This relatively obscure geometric pattern, mostly familiar to mathematicians involved with *group theory*, takes the form of 240 vectors arrayed around a point, the vertices of a *semi-regular polytope* that appears to the less mathematically literate as a concentric latticework, a kind of abstract, intricately geometric mandala. By assiduously mapping the known elementary particles onto the geometric figure, Lisi found an incredible correlation in the geometric polarities of the figure and the quantum polarities of the elementary particles – from which it became possible to infer the missing particles – and their characteristics – by their absence in an otherwise complete figure.

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<sup>135</sup> Sepper, *Goethe Contra Newton*, 8.

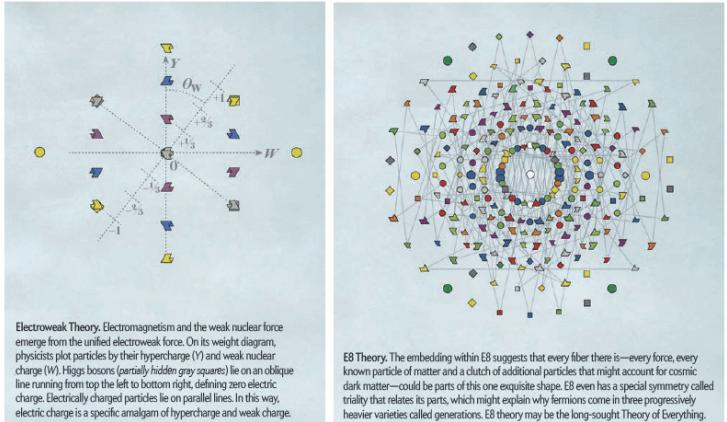
<sup>136</sup> “Supersymmetry | CERN,” accessed January 23, 2017, <https://home.cern/about/physics/supersymmetry>.

## A Progression of Theories

Each type of elementary particle corresponds to a different fiber. These fibers twist around the various circular fibers of photons and other force particles; the twisting corresponds to their electric and other charges, which mathematicians call "weights." Each force of nature has its own type of charge and is mediated by its own force particles. The patterns of particles' charges describe the geometry of how the fibers twist around one another, governing how the corresponding particles can interact.

| BOSONS        | FERMIONS               |
|---------------|------------------------|
| Photon        | Neutrino               |
| Weak bosons   | Left-handed spin-up    |
| Gluons        | Left-handed spin-down  |
| Gravitons     | Right-handed spin-up   |
| Frame-Higgs   | Right-handed spin-down |
| Weaker bosons | Up quark               |
| X bosons      | Down quark             |
| More Higgs    | Up quark               |
|               | Down quark             |
|               | Up quark               |
|               | Down quark             |
|               | Up quark               |
|               | Down quark             |
|               | Up quark               |
|               | Down quark             |

The world of elementary particles is a veritable menagerie. Particles come in two broad types, bosons (which transmit forces) and fermions (which constitute matter). Each fermion can come in several varieties: particle or antiparticle, left- or right-handed, spin up or down, and, for quarks, one of three colors. Every particle, identified by its charges, can be plotted in a weight diagram.



[fig.5\_Garrett Lisi\_Scientific American] E8 'progression of theories' Image: Courtesy of *Scientific American*

Publication of Lisi's theory caused a sensation, and perhaps predictably, prompted a vociferous polemicism. As Lisi says,

*I was pretty happy with my life before 2008, spending my time on physics and surfing. The most negative repercussion of the attention was that the physics I love got thrown into a black vs. white media machine. My emphasis on proposing a new research direction and not a completed ToE [theory of everything] was ignored, and there were premature attacks, such as "rock climber proves surfer's theory can't work," and other foolishness. The attention was fun, but bad for development of the theory, which had been building interest among physicists before the media storm got ridiculous.<sup>137</sup>*

The E8 pattern had come up before in physics, most notably in string theory, but Lisi's work is closer to that done in the early 1960s, when physicist Murray Gell-Mann suggested that the zoo of subatomic particles could be organized into patterns that corresponded to features of another (and much simpler) Lie group, SU3. One of the patterns was missing a particle, and Gell-Mann predicted that a particle with certain properties should exist to fill that spot. Experimentalists soon discovered just such a particle.<sup>138</sup> Lisi continues working toward such tangible proof of his theory<sup>139</sup> – which he consistently acknowledges is as-yet-incomplete and a work in progress<sup>140</sup> – and other researchers have since taken

<sup>137</sup> John Horgan, "Surfer-Physicist Offers Alternative to String Theory, Academia," *Scientific American* Blog Network, October 20, 2014, <https://blogs.scientificamerican.com/cross-check/surfer-physicist-offers-alternative-to-string-theory-academia/>.

<sup>138</sup> Graham P. Collins, "Did Garrett Lisi Have a Wipeout?," *Scientific American*, December 30, 2008, <https://www.scientificamerican.com/article/garrett-lisi-e8-theory/>.

<sup>139</sup> A. Garrett Lisi, "An Explicit Embedding of Gravity and the Standard Model in E8," in *Proceedings of the Conference on Representation Theory and Mathematical Physics*, 2010, <https://doi.org/arXiv:1006.4908>.

<sup>140</sup> A. Garrett Lisi, "Garrett Lisi Responds to Criticisms," *Scientific American* (blog), May 4, 2011, <http://www.scientificamerican.com/blog/post.cfm?id=garrett-lisi-responds-to-criticisms-2011-05-04>.

up the work.<sup>141</sup> Lisi's most recent published research is his most complete to date, a 42-page thesis – relating subatomic and cosmological principles – titled 'Lie Group Cosmology.'<sup>142</sup> If Lisi's work is increasingly ambitious, it is also increasingly viewed by the mainstream scientific community as a viable and promising alternative to the theory of supersymmetry,<sup>143</sup> which has yet to be validated by empirical evidence.<sup>144</sup> In fact, Lisi was most recently in the news because he won a thousand-dollar bet with Nobel-laureate physicist Frank Wilczek, who believed that within six years the Large Hadron Collider would enable the discovery of a superparticle – such as was predicted to exist according to supersymmetry.<sup>145</sup> Lisi disagreed – his E8 theory doesn't require such particles – and after 7 years (he gave his competitor an extra year due to technical problems with the LHC) Wilczek conceded the bet, prompting one commentator to make the observation that while supersymmetry has long been regarded "as one of the best ways to extend the standard model," since "the LHC has so far failed to see any signs of [supersymmetry] – or indeed, anything beyond the standard model...it's starting to look like the theory might be wrong."<sup>146</sup> That is to say that Lisi – the hesitant polemicist – might yet be right.

#### v. A Two-Way Cosmology: Walter Russell (1871-1963) vs. Newton (And Kepler)

One further polemic highlights the importance of the concept of dualism – it addresses the discovery of subatomic particles and of elements in the periodic table. Through the summer and autumn of 1930 another heated exchange was played out in the pages of the New York Times. The impetus for the exchange came from an editorial printed July 21<sup>st</sup> in response to a letter the editor had received from one Walter Russell, President of the Society of Arts and Sciences and an artist and sculptor of the Boston School whose commissions for the *Mark Twain Memorial* (1934) and for Franklin D. Roosevelt's *The Four Freedoms* (1943) only served to further validate his reputation as 'one of the foremost sculptors in the country,' according to the Times.<sup>147</sup> This first Times headline read, '*ARTIST CHALLENGES NEWTONIAN THEORY*' – presenting Russell's 'cyclical theory of continuous

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<sup>141</sup> Paul F. Kisak, ed., *An Exceptionally Simple Theory of Everything: "The Unified Field Theory Known as E8,"* 1st Edition edition (CreateSpace Independent Publishing Platform, 2016).

<sup>142</sup> A. Garrett Lisi, "Lie Group Cosmology," *General Relativity and Quantum Cosmology*, September 24, 2015, 42.

<sup>143</sup> Horgan, "Surfer-Physicist Offers Alternative to String Theory, Academia"; A. Garrett Lisi and James Owen Weatherall, "Garrett Lisi Explains His Grand Unified Theory," *Scientific American*, August 2014, <https://www.scientificamerican.com/article/garrett-lisi-explains-his-grand-unified-theory/>.

<sup>144</sup> Jacob Aron, "Physicists Struggle to Squeeze New Particles from the LHC," *New Scientist*, December 15, 2015, <https://www.newscientist.com/article/2070579-physicists-struggle-to-squeeze-new-particles-from-the-lhc/>.

<sup>145</sup> Jacob Aron, "Surfer Physicist Wins Superparticle Bet with Nobel Laureate," *New Scientist*, August 17, 2016, <https://www.newscientist.com/article/2101550-surfer-physicist-wins-superparticle-bet-with-nobel-laureate/>.

<sup>146</sup> Amanda Gefter, "What If Supersymmetry Is Wrong?," *New Scientist*, March 15, 2011, <https://www.newscientist.com/article/dn20248-what-if-supersymmetry-is-wrong/>; Aron, "Surfer Physicist Wins Superparticle Bet with Nobel Laureate."

<sup>147</sup> Special To The New York Times, "Shrine to Mark Twain," *The New York Times*, May 24, 1934. note: Russell's public sculpture was part of the City Beautiful tradition (1900-1940), and will be considered further within the context of that tradition in *2\_Civic Design*.

motion' and stating that he "denies the universally accepted law that 'like charges repel and opposite charges attract each other.'"

"*If this were true," he asks, "why is it that positive and negative poles of a bar magnet are at its opposite ends as far as they can get away from each other, instead of being together in the middle, as they should be logically if the law were true?"* Mr. Russell launches into further speculation, which he promises to 'prove'... "Many new metals," he writes, "of great value to industry can be secured by understanding nature's simple but hitherto unknown principles. An ocean steamship like the Leviathan could produce her own fuel at negligible cost from sea water in a machine no larger than a newspaper printing press. Carbon metal could be developed with a tensile strength double that of Bessemer steel. Silicon steel will become an ideal structural steel, with more than double its present strength, and very much cheaper, because of the unlimited supply of sand, than iron ore.'

<sup>148</sup>

Russell's bold claims were understandably received with skepticism, triggering a six-month public polemic involving no fewer than half a dozen articles and as many letters in response. Within a week Dr. John E. Jackson, a respected scientist and something of a public figure, penned a response to the Times refuting Russell's assertions:

*Disregarding all his other claims it seems to me that it would be more fitting for an artist of Mr. Russell's acknowledged distinction in his own field, to remain in it and not go trespassing on 'ground which even angels fear to tread.' For nearly three hundred years no one, not even a scientist, has had the temerity to question Newton's laws of gravitation. Such an act on the part of a scientist would be akin to blasphemy, and for an artist to commit such an absurdity is, to treat it kindly, an evidence of either misguidance or crass ignorance of the enormity of his act.*<sup>149</sup>

But Russell was no ordinary sculptor – he was a polymath whose significant scientific accomplishments prompted the New York Herald Tribune to refer to him as 'the modern Leonardo.'<sup>150</sup> Among other noteworthy accomplishments in science, he had foreseen the discovery of Neptunium and Plutonium in 1926 – using inferential methods similar to Lisi's geometric E8 pattern – years before they were discussed and confirmed by scientists.<sup>151</sup>

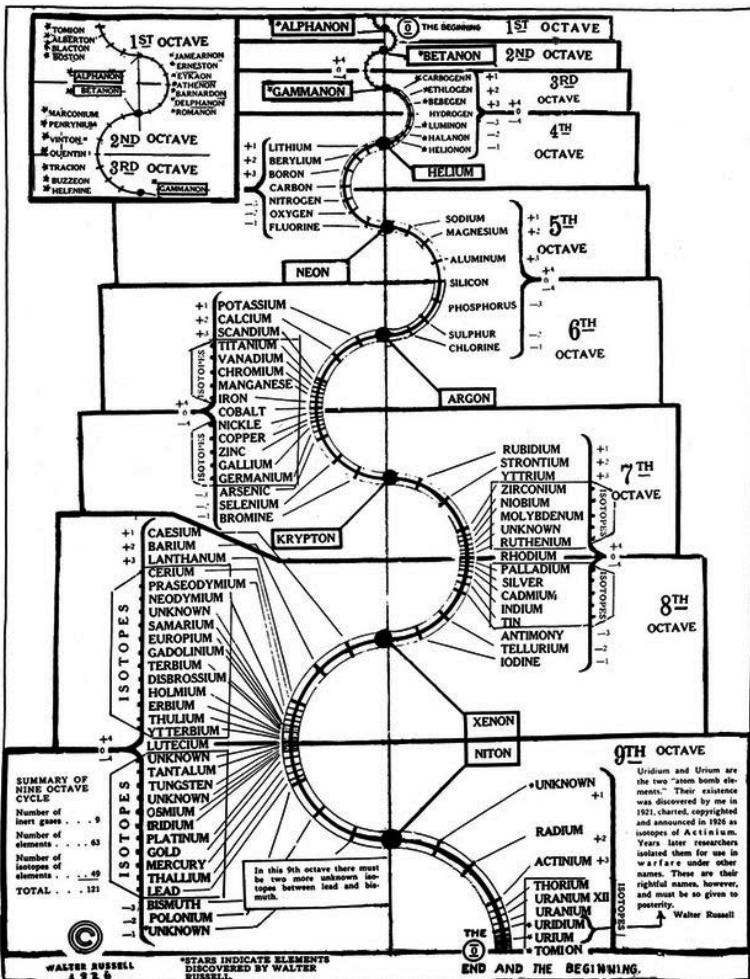
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<sup>148</sup> Walter Russell and editor, "Artist Challenges Newtonian Theory: Head of Society of Arts and Sciences Writing Book Revising Other Scientific Principles," *The New York Times*, July 21, 1930, sec. Editorial.

<sup>149</sup> John Jackson, Walter Russell, and editor, "Scientist And Artist Dispute Newton And Kepler Findings: Dr. Jackson Sees Something Profane in Mr. Russell's Attack on Laws of Science The Perfect Laws. Mr. Russell Replies. Supplying Needed Imagination. Law Merely Local. Fair Treatment Asked.," *The New York Times*, August 3, 1930, sec. Editorial.

<sup>150</sup> Herald Tribune, "The Modern Leonardo," *New York Herald Tribune*, May 20, 1963.

<sup>151</sup> Walter Russell, *A New Concept of the Universe*, Revised edition (Univ of Science & Philosophy, 1989), 11, n. As Russell writes "Uridium and Urium are the two 'atom bomb elements.' Their existence was discovered by me in 1921, charted, copyrighted and announced in 1926 as isotopes of Actinium. Years later researchers isolated them



[fig.6\_Russell's geometric periodic table] Image: Courtesy Walter Russell Foundation

Russell promptly responded to Jackson's 'perfectly natural letter of resentment for which I do not blame him in the least,' and clarifies his purpose by taking issue with Kepler's first law of planetary motion, the *Law of Ellipses*:

*It is true that I have challenged the accuracy or completeness of the Newtonian laws of gravitation and will just as vigorously attack the other 'sacred laws' of Kepler, and any others, either ancient or modern, that need modifying or rewriting to fit the needs of a civilization whose onward march is held back by the untruths, or half truths, of those who rely upon the deceptive evidence of what their eyes think they see.*

Russell also acknowledges Jackson's critique of his disciplinary transgression, stating that he was 'sorry that an artist had to do it,' but goes on to justify his transgression by quoting Sir Oliver Lodge's assertion that no scientist could make the 'supreme discovery of the one thing for which science is looking and hoping' and suggesting that such a discovery would have to be the

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for use in warfare under other names. These are their rightful names, however, and must be so given to posterity".

“supreme inspiration of some poet, painter, philosopher or saint.”<sup>152</sup> Following Lodge, Russell argues that science can benefit from artistic imagination - poetically synthesizing science’s ‘heterogeneous complexities...for nature is very simple in her causes’, and concludes:

*I have not said that Newton's laws were wrong, for they are right as far as they go. They are only half truths, though. Kepler's first law is not only a half truth, but the half that is stated is inaccurately stated. Science should be exact, not approximate or inferential. Just as Newton left out all consideration of the equal and opposite reaction to the attraction of gravitation, which is the repulsion of radiation, so does Kepler leave the other focus of his ellipses out of his consideration. “The sun is one of the foci of planetary elliptical paths,” he says; but how about the other one? My friendly critics will of course admit that there are two foci to any elliptical orbit. If one of these foci is important, why is not the other equally so? What is the cause of elliptical orbits if not that some doubly acting force, concentrated at two foci, is exerting its opposite influences on both masses, not on one...Perhaps Dr. Jackson will explain to me why Kepler and Newton, and all who have followed since then, have shirked this other necessary focus and have given us only the perfectly obvious one. If Newton had watched that apple compose itself from low potential gases and liquids to high potential solids, saw it fall, and still remained on his job watching it decompose back again into low potential gases and vapors as it arose, we might have had a complete law of gravitation which would have been a great aid in putting a much-needed foundation under the feet of science during these intervening centuries.*<sup>153</sup>

Jackson’s criticism and Russell’s response were published together under the title ‘Scientist and Artist Dispute Newton and Kepler’ on August 3, 1930. On August 10<sup>th</sup> another correspondent entered the exchange, one G.P. Hersey – a regular contributor to the Times who was in his day perhaps far better recognized than either Russell or Jackson.<sup>154</sup> Under the title ‘Views of Both Dr. Jackson and Mr. Russell Are Borne Out’ Hersey begins by positioning Jackson’s argument that “for nearly 300 years no one, not even a scientist, has had the temerity to question Newton’s laws of gravitation” as representing ‘static’ thought, and Russell’s response, paraphrasing Lodge, that “science needs the imagination of an artist or poet to synthesize her heterogeneous complexities” as representing ‘dynamic’ thought:

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<sup>152</sup> Lodge (1851-1940) was a British physicist and writer, best known for his contributions to the development of wireless telegraphy and his invention of electric spark ignition. “Sir Oliver Lodge,” accessed August 11, 2017, <http://www.thepotteries.org/focus/003.htm>.

<sup>153</sup> Jackson, Russell, and editor, “Scientist And Artist Dispute Newton And Kepler Findings: Dr. Jackson Sees Something Profane in Mr. Russell's Attack on Laws of Science The Perfect Laws. Mr. Russell Replies. Supplying Needed Imagination. Law Merely Local. Fair Treatment Asked.”

<sup>154</sup> Gyeorgos C. Hatonn, *Mysteries of Radiance Unfolded: Relative Connections* (Las Vegas: Phoenix Press, 1993).

*...for the contributions of science to art and art to science are relative with respect to the analysis and synthesis of primitive symbolism. The questioning of Newton's laws and Kepler's extensions is a timely and healthy inquiry directed at contemporary cosmogenetics. The assimilation of knowledge within an individual experience, therefore, can be regarded rightly as either static or dynamic, [and] can be applied as a simple correlation of established facts, or can be accepted as a means for concentrating on and contributing to progressive thought... In supporting Mr. Russell's request for fair treatment, it may be added that the abstractions of science, along with the reality of art, present a fundamental intellectual and physical process to which the effort and production of the individual is irrevocably linked.<sup>155</sup>*

Hersey then attempts to substantiate his emphasis on the contributions of individual insight to disciplinary knowledge by illustrating the point with reference to several architects, beginning with one of our protagonists:

*To aid and abet an escape from academic finality by means of such generalities is admittedly the essence of temerity, but Newton's laws have been repeatedly, consistently and profitably questioned by applied science since their inception. They are rightly finite in analysis, so why not let them provide for the infinite in synthesis? In The Times of June 29 the pioneer achievement of Frank Lloyd Wright, in the field of architectural form, design and the adaptation of materials, was outlined in a comprehensive article illustrating not only the functional relation of the engineer, the architect and the draftsman within the creative accomplishments of an individual, but also including contributions to modern architectural practice which may be attributed almost entirely to an understanding of Newton's dynamics.<sup>156</sup>*

He goes on to describe Buckminster Fuller's novel approach to design – through ‘spherical geometry and the application of simple dynamics to the evolution and introduction of new materials in a logical relation to height, bulk and weight requirements’ – as having proven relevant to the discipline generally, citing a catalog from the Harvard Society for Contemporary Art, which asserts that Fuller’s ‘Dymaxion House’ is “the first complete attempt in architectural design to acquire a symbolism of the fourth dimension, as the designing method is literally from the ‘inside out’ on a radionic, time, space and quantum basis.”<sup>157</sup> Having developed this line of thought pertaining to the relations of science and art, static and dynamic, collective discipline and individual effort, Hersey’s final architectural reference is perhaps the most directly related to the substance of Russell and Jackson’s polemic:

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<sup>155</sup> G.P. Hersey, “Einstein Admits Unalterable Can Be Altered: One Holds Views of Both Dr. Jackson and Mr. Russell Are Borne Out,” *The New York Times*, August 10, 1930, sec. Weekend Cables.

<sup>156</sup> Hersey.

<sup>157</sup> 4D Buckminster Fuller's Dymaxion House: Old Fogg Museum, Harvard Yard (Cambridge, Mass.: Harvard Society for Contemporary Art, 1930).

*"Roadtown" of Edgar Chambless, a practical conception of continuous structure within which is integrated all ways of communication, and the utilities of service, along with a balanced social system, constitutes a recognized application of the laws of centripetal and centrifugal social force (the centralization and decentralization of population)...<sup>158</sup>*

Russell again responds in the following Sunday paper on August 17<sup>th</sup>, but this time the polemic is featured in the paper's *Educational* section, where he endeavors to illustrate the underlying unity of principle by suggesting a thought experiment:

*Suppose a man experimented with the moon running behind the trees as he ran, then set down his conclusions from the "facts," as he saw them, such as the correspondence of acceleration and deceleration to his speed, we could easily point out the error of such a deduction because we are familiar with the illusions of perspective...in this universe of motion, all effects of motion are illusions. Illusions are not limited to perspective [views] but to every electrical, chemical and astronomical relation. Nature is the supreme deceiver, the champion "poker bluffer," who, with a simple hand, makes you think she has much. Nature is simple. She has but one force (which she divides into two), one form (which she divides into many), and seven patterns (which she complexes by repeating them in such marvelous systems of wave periodicities that it needs imagination, rather than eyesight, to coordinate them). Nature can be beautifully described by that child's toy of hexagonal mirrors which makes the most exquisite and complex patterns in color and form out of a bit of feather, some chips of colored glass, a toothpick and other odds and ends...My humble contribution to science is to point out these simple principles of Nature.<sup>159</sup>*

Then next correspondent in the polemic was electrical engineer George Soule, who found the soundness of Russell's claims regarding the untrustworthiness of some of science's fundamental premises to have shaken his confidence in his own training:

*Russell claims that all conclusions of scientists in regard to things electric are based upon the assumption that all masses are "charged" either positively or negatively. This, he says, is fundamentally wrong, for all masses are doubly charged, each one being preponderantly one or the other just as male and female are known to be so. Russell has set up such a very strong and convincing argument in support of his claim that my traditional electrical training is severely shaken even if I am not a 100 per cent convert as yet. If, however, Russell succeeds in establishing this one claim alone he will have shaken the very foundations of science...<sup>160</sup>*

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<sup>158</sup> Hersey.

<sup>159</sup> Walter Russell, "Mr. Russell Finds Scientists Too Ready To Accept Theory: His Attempt at Reformation Not Based on Metaphysics, He Declares," *The New York Times*, August 17, 1930, sec. Educational.

<sup>160</sup> George Soule, "Shaking Science's Foundations," *The New York Times*, August 31, 1930, sec. Educational.

Compared to the first confrontational exchanges in this public polemic, the tenor of the letters at this point shifts distinctly to a more discerning, appreciative one, with additional correspondents entering the discourse and acknowledging the validity of one another's observations. As one Edward Richardson states in a letter published on October 26<sup>th</sup> – anticipating the relations we'll demonstrate between theory, narrative, and design (*1.3\_The Grand Narrative*):

*A theory is a mental picture of the universe, or a part thereof, which best accounts and satisfactorily accounts for the known phenomena. To test a theory, we make all the deductions possible from the theory and make experiments to see whether the deductions find a counterpart in nature. The ether-wave theory of light held sway for over a hundred years. From the time of Clerk Maxwell onward it so satisfactorily accounted for phenomena and had so unexpectedly deduced so many unsuspected relationships in physics that it was regarded as an established fact, a true picture of the universe. Yet today very few of the leading physicists believe in an ether at all...<sup>161</sup>*

In his response on November 2<sup>nd</sup>, Russell again takes the initiative and addresses his previous assertions in relation to the recently published theories of physicists Dirac and Millikan:

*Modern science does not recognize the vacuous force in nature, due to the incomplete Newtonian concept which has given us a "one-way" universe instead of the "two-way" universe of my cosmogony. If Newton had completed his gravitational observations and Kepler had been as curious about unmentioned vacuous focus as he was regarding the focus he did mention, science would now understand what this newly discovered negative "hole which acts like a proton" really is and I would not be in the position of being disliked by my scientific friends for playing the part of Copernicus to their Ptolemy.<sup>162</sup>*

This grand polemic finds closure with the final letter being written by Dr. Jackson, who had been the first respondent in the polemic, published under the headline, *DR. JACKSON WITHDRAWS CRITICISM OF "TWO-WAY" UNIVERSE AND SEEKS PROOF*:

*Mr. Russell has evidently approached his solution to the greatest riddle from the point of view opposite to that of the scientist. He has considered the universe as a whole and offers explanations for the workings of its units as they fit into the whole, while we scientists study the separate parts but as yet cannot fit them together perfectly...*

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<sup>161</sup> Edward Adams Richardson, "Russell's Remark On Theory Of Atomic Structure Uphold: His 'Green Cheese' Statement Is Declared to Have Considerable Justification," *The New York Times*, October 26, 1930, sec. Editorial.

<sup>162</sup> Walter Russell, "Mr. Russell Upholds Theory Of A 'Two-Way' Universe: Proton Is Not a 'Hole,' He Declares, Merely Because It Acts Like One," *The New York Times*, November 2, 1930, sec. Editorial.

While Jackson states that he is not yet prepared to say that he fully accepts Russell's 'two-way' principle, he admits he is "immensely intrigued by it, for it gives this universe of motion a meaning to me that it did not have before." Pointing out that Russell's conception of a 'two-way swing of the universal pendulum' might be the best method for "understanding the nature of electricity, the generation and degeneration of mass and the universal mechanistic principles", he goes on to acknowledge in his concluding statement that "a few outstanding and seemingly irrefutable facts stand in favor of Russell's 'two-way' principle":

*First of all, the compression-expansion sequence constitutes a cycle of motion which is mechanistic; it conforms with the known oscillating character of all electrical force...How simple it is to understand an electrical short circuit, or a chemical reaction, when thus explained, or to understand the motion of energy as force seeking an equilibrium. I remember when we used to think that the current in a battery flowed only in one direction. We now admit its flow in both directions. If nature expresses itself universally by a flow in both directions, instead of in isolated instances, it is well to know it even though we old-timers have to adjust our practice to it...I was especially vituperative toward Russell because he dared to tamper with the Kepler law. I can now see that Kepler's mention of a single focus, and his failure to mention the other, coupled with Newton's single attribute of matter to attract matter without mentioning its equally apparent power to repel, deprived science of a possible solution of the universal riddle...Why did not some scientist think of this instead of waiting 300 years for an artist to tell us about it? I am anxious to see that other focus proved as the seat of the vacuous force of negative electricity that Russell claims for it...We shall then be convinced that Russell's contention that matter does not attract nor repel matter is probably true and that attraction and repulsion are but the sequences of compression-expansion oscillations with which we have long been familiar in electrical practice, but did not connect up with gravitation or radiation. I invite the collaboration and criticism of my fellow scientists at large to join me in this, because, should Russell be able to prove his claims, we should all give him due credit...He is in earnest and at least deserves our support.<sup>163</sup>*

On one hand this remarkably amicable outcome of what began as a vituperative polemic between an artist and a scientist is a tribute to the civility and open-mindedness of the participants. On the other hand it is perfectly consistent with the unitary origins of both art and science, followed by generations of increasing specialization, and the subsequent return of a more holistic scientific attitude.

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<sup>163</sup> John Jackson, "Mr. Russell May Be Right," *The New York Times*, November 9, 1930, sec. Editorial.

#### *vi. Two Hans Jenny's*

Having considered the useful outcomes of polemics, we now turn to two Swiss protagonists – one of whom was regarded as ‘the scientist’s scientist’, the other as a ‘renaissance man’ – both of whom were non-polemists exemplifying the kind of holistic scientific attitude, deliberately addressing ‘two-way’ cyclical systems, and ensuring that their work retain its relevance in the new nonlinear paradigm.

The first is Hans Jenny (1899-1992), a Swiss soil scientist and native of Basel, who after having obtained degrees in agriculture and soil science from ETH-Zurich, and seven ‘productive and formative’ years at the University of Missouri, effectively spent the rest of his career at University of California, Berkeley – a public university closely associated with the Free Speech, Environmental and Antiwar Movements, in which he was also an active participant.<sup>164</sup> Jenny’s international reputation was made upon the publication of *Factors of Soil Formation: A System of Quantitative Pedology*<sup>165</sup> in 1941, which provided a synthesis of field studies and the abstract formalism of physical chemistry, and explores the roles of the factors of time, parent material, topography, climate and organisms in the formation of soil, and contained numerous illustrations – drawn by Jenny himself. Pedology, as Jenny explains in the preface, is ‘the domain of soil science that studies the soil body in its natural position’ – that is to say, in context.<sup>166</sup>

In addressing these contextual factors, Jenny was attempting to correct what he saw as a lack of awareness regarding soils in the public sphere, and to frame more precisely the scientific discourse in his own profession:

*During thousands of years mankind has looked upon soils mainly from the utilitarian point of view... In the layman's mind, the soil is a very concrete thing, namely, the "dirt" on the surface of the earth. To the soil scientist, or pedologist, the word "soil" conveys a somewhat different meaning, but no generally accepted definition exists... Fortunately there is no urgent need for universal agreement. For the purpose of presentation and discussion of the subject matter it is necessary only that the reader know what the author has in mind when he uses the word 'soil.'*<sup>167</sup>

In the book’s preface Jenny’s Berkeley colleague Roland Amundson wrote, “Like Darwin’s *Origin of Species* or Lyell’s *Principles of Geology*, Jenny’s *Factors of Soil Formation* is, to use Darwin’s description, ‘one long argument.’”<sup>168</sup> Like those enduring equations of Newton and Einstein, Jenny proposed a set of mathematical relations between observable soil properties and the contextual factors involved in the

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<sup>164</sup> “University of California: In Memoriam, 1992,” accessed April 29, 2017, [http://texts.cdlib.org/view?docId=hb7c6007sj&doc.view=frames&chunk.id=div00028&toc.depth=1&toc.id=".](http://texts.cdlib.org/view?docId=hb7c6007sj&doc.view=frames&chunk.id=div00028&toc.depth=1&toc.id=)

<sup>165</sup> Hans Jenny, *Factors of Soil Formation: A System of Quantitative Pedology*, 2011th ed. (New York: Dover Publications, 1941).

<sup>166</sup> Jenny, v.

<sup>167</sup> Jenny, 6–7.

<sup>168</sup> Jenny, vii, note: This statement was written shortly after Jenny’s death in 1992.

process of soil formation, which he introduces as “The Fundamental Equation of Soil-forming Factors”:<sup>169</sup>

$$s = f(c_l, o, r; p, t, \dots)$$

The open ellipsis indicates the possibility of additional variables in the function, where  $s$  - soil properties;  $c_l$  - regional climate;  $o$  - potential biota [animal and plant life of a given region, habitat or geological period],  $r$  - relief;  $p$  - parent material;  $t$  - time. Again, like those more famous equations of Newton and Einstein, Jenny’s equation has not been superseded, and his theory of the formation of soils and ecosystems remains the state of the art.<sup>170</sup> As Jenny writes,

*Soil and environment form coupled systems. That is to say, many corresponding properties of the two systems pass continuously from the one to the other. They step across the boundaries. Temperature, for example, does not change abruptly as one passes from the soil to the environment. Neither do nitrogen, oxygen, and carbon dioxide content. Many organisms, especially vegetation, likewise are common to both soil and environment. It is well known that the root hairs of a tree are in intimate contact with the mineral particles and, in practice, are treated as soil properties. Similar treatment is accorded to the fine rootlets. At some point, the root system of the tree emerges into the trunk, and the latter is usually considered a part of the environment. Topography, i.e., the shape of the upper boundary of the soil system, naturally is a property of both soil and environment. We note, therefore, that the soil properties  $c_l'$  [regional climate],  $o'$  [potential biota], and  $r'$  [relief] cross the boundaries of the soil system and extend into the environment.*<sup>171</sup>

That *Factors of Soil Formation* succeeded in advancing the science of pedology is evident by any cursory review of the recent scholarly research publications citing the work – from those addressing soil taxonomy,<sup>172</sup> to those addressing fire as another crucial factor to situate within Jenny’s open-ended ellipses.<sup>173</sup> And this book is just one of Jenny’s distinguished achievements, evidenced by more than 120 publications, that “ushered in a new era of research into the origin and distribution of soils on the earth’s surface.”<sup>174</sup>

But has Jenny’s driving ambition to raise public awareness of soil, as the basis for all terrestrial life, taken hold? Jenny’s concern about this prompted him to tireless advocacy for soil conservation and ecological restoration throughout his life – from untold hours working with regional farmers at agricultural research stations, to serving as president of the Soil Science Society of America, whose

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<sup>169</sup> Jenny, 17.

<sup>170</sup> Jenny, xi.

<sup>171</sup> Jenny, 17.

<sup>172</sup> J. G. Bockheim et al., “Soil-Forming Factors and Soil Taxonomy,” *Geoderma* 226 (2014): 231–237.

<sup>173</sup> Giacomo Certini, “Fire as a Soil-Forming Factor,” *Ambio* 43, no. 2 (March 2014): 191–95, <https://doi.org/10.1007/s13280-013-0418-2>.

<sup>174</sup> “University of California: In Memoriam, 1992.”

explicit mission is “to advance the discovery, practice, and profession of soil science through excellence in the acquisition and application of knowledge to address challenges facing society, in the training and professional development of soil scientists, and in the education of, and communication to a diverse citizenry.”<sup>175</sup> Following his retirement from academia, these attempts at popularizing soils took on greater urgency, and greater variety of expression.

In response to a papal invitation to present a lecture, later published as the book *The Image of Soil in Landscape Art, Old and New* – an ambitious yet remarkably sensitive 34 page treatise covering five centuries of landscape art as represented by 20 artists – beginning with the *Transfiguration* of Duccio (c. 1255-I319) and concluding with Jean Dubuffet’s *Au pied du mur* of 1958. Jenny opens the book asking, “Who is the arbiter of what is beautiful in nature? Who decides whether soils evoke aesthetic pleasure?”<sup>176</sup> The first example he cites is a site he knows intimately - Pygmy Forest, a community of ericaceous and coniferous plant species whose stunted growth and grotesquely twisted morphology reveal a long and tortured struggle for survival on some ancient marine terraces in Mendocino County, not far from Berkeley’s campus.

The Pygmy Forest became an ecological *Rosetta stone* for Jenny, and he dedicated much of his post-retirement life to interpreting its relationship to his five factors of soil formation, work that he continued until just months before his death. His direct observation of the Pygmy Forest also led Hans to a renewed perception of the uniqueness and fragility of soil ecosystems. Along with his wife Jean Jenny, he waged a series of successful campaigns to preserve a number of such unique areas in California, including the Jughandle State Reserve (itself containing part of the Pygmy Forest), Mt. Shasta mudflows, and Jepson Prairie.<sup>177</sup>

Among his last publications was a letter to Science magazine, in which he establishes what seems to be his first strongly polemic position, arguing that a critical view should be taken of ‘the rosy outlook that is sweeping the nation about converting biomass to alcohol and gasohol’:

*We are promised construction of ingenious machines that will pick up all crop residues in the fields and leaf litter and humus in the forests. The carbon and nitrogen cycles of ecosystems will be curtailed and soil stability endangered. Because of a possible climatic warm-up, we do not wish to accelerate humus oxidation and the concomitant flux of carbon dioxide from soil into the atmosphere. I am arguing against indiscriminate conversion of biomass and organic wastes to fuels. The humus capital, which is substantial, deserves being maintained because good soils are a national asset.*<sup>178</sup>

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<sup>175</sup> “Soil Science Society of America,” accessed April 29, 2017, <https://www.soils.org/about-society>.

<sup>176</sup> Hans Jenny, “The Image of Soil in Landscape Art, Old and New,” vol. 32 (Study Week on Organic Matter and Soil Fertility, Vatican: Pontificiae Academiae Scientiarum Scripta Varla, 1968), 2.

<sup>177</sup> “University of California: In Memoriam, 1992.”

<sup>178</sup> Hans Jenny, “Alcohol or Humus (Letters),” *Science*, July 25, 1980.

Jenny's argument against the narrow commodification of biomass 'fuels' – an issue that has arisen nearly every decade since, and is of contemporary concern in many countries – is yet another expression of the insights behind his farsighted conception of soils and the environment as 'coupled systems' engaged in cyclical exchanges that are the basis for life itself.

Our second Hans Jenny (1904-1972), a physician and natural scientist also born in Basel some five years after his elder namesake, made his living as a family physician while conducting his scientific research as a personal pursuit. The scientific approach of Goethe had profoundly influenced him, and from his youth he was known to take long ornithological excursions in the countryside outside Basel – carrying a modest pair of binoculars given him by his father, 'one of his most prized possessions'.<sup>179</sup> As one of his lifelong friends relates,

*It was on one of these ornithological excursions bicycling in the hills overlooking the Birs Valley near Dornach, that the 14 year-old's gaze fell upon the first Goetheanum, a unique and impressive wooden structure built under the inspiration and direction of Rudolf Steiner...a short time later he accompanied his parents and a small group of educators and public officials on a guided tour...led by none other than Rudolf Steiner himself.<sup>180</sup>*

Jenny dedicated himself to studying Steiner's *anthroposophy* from that young age. Although 'he didn't always relate well with Steiner's followers – so-called 'Anthroposophists'<sup>181</sup> – years later, having completed his doctorate and prior to initiating his own medical practice, he taught science for four years at the Rudolf Steiner School in Zurich.<sup>182</sup>

Jenny's first scientific publication was issued in his 50<sup>th</sup> year, and was a study in morphology titled *Der Typus (The Type)*, 1954<sup>183</sup> – followed nearly ten years later by *Das Gesetz der Wiederholung (The Law of Repetition)*, 1962.<sup>184</sup> It is in the latter book that he identified the subject that was to become a new field of scientific research, for which he coined the term *kymatic* to describe the physical and material effects of sound wave phenomena. The term is generally understood to have been derived from the Greek term *kýma* [κύμα], meaning 'wave' – but Jenny specifies it more precisely as being taken from *to kyma*, 'the wave', and *ta kymatika*, 'wave matters'.<sup>185</sup> The term was adopted for the title of his final work, *Kymatic vol.1*, published in 1967,<sup>186</sup> and *Kymatic vol.2*, published posthumously in 1972.<sup>187</sup> These were subsequently translated into English as *Cymatics* and published as a single volume.<sup>188</sup>

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<sup>179</sup> Hans Jenny, *Cymatics: A Study of Wave Phenomena and Vibration*, a complete compilation of the original two volumes (Newmarket: Macromedia, 2001), 14.

<sup>180</sup> Jenny, 15.

<sup>181</sup> Jenny, 15.

<sup>182</sup> Jenny, 15.

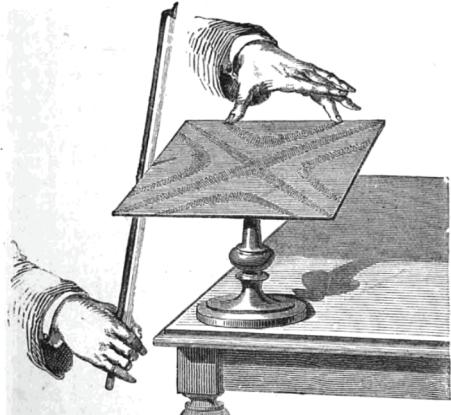
<sup>183</sup> Hans Jenny, *Der Typus* (Natura-Naturans-Verlag, 1954).

<sup>184</sup> Hans Jenny, *Das Gesetz Der Wiederholung Und Seine Problematik*. (Basel: Natura-Naturans-Verlag, 1962).

<sup>185</sup> Jenny, *Cymatics*, 259.

<sup>186</sup> Hans Jenny, *Kymatic*, vol. 1, 2 vols. (Basel: Basilius Presse, 1967).

Jenny developed a methodology inspired by systems theory and based on the techniques of the German physicist and musician Ernst Chladni (1756-1827) – an associate of Goethe’s, and of whom the poet was a known advocate.<sup>189</sup> Chladni had undertaken pioneering research in the study of meteorites, being the first to suggest that they were of extraterrestrial origin,<sup>190</sup> but is best known as the father of acoustics – a reputation he acquired for his invention of a method for visualizing the patterns of vibrations on mechanical surfaces, using metal plates caused to resonate by drawing a violin bow across the surface edge. Such instruments came to be known as ‘Chladni plates’, with which he revealed the patterns of vibration using fine sand that is displaced from antinodes – areas of total displacement – and settles into the nodal lines - areas of zero displacement –

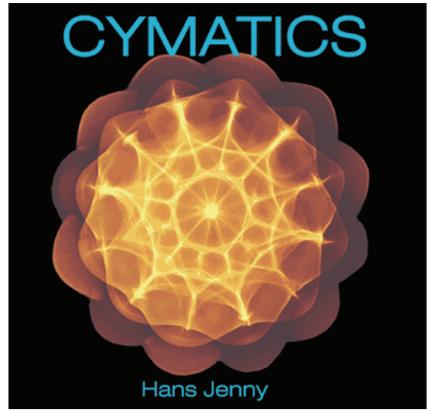


[fig.7 Chladni Plate plate (1879)]

yielding vivid patterns that coincide with the shape of the plate and the intensity of the vibration.<sup>191</sup>

Extending Chladni’s research, Jenny developed a rigorous experimental method yielding the visual display of sound. Using liquids of various viscosities, quartz sand, and fine lycopodium powder

(spores of club moss) which – when activated by amplifiers and precisely calibrated electronic oscillators, involving laboratory grown piezoelectric crystals, which he also pioneered – revealed in stunning variety the visual evidence of periodic phenomena. The widespread popularity of the work of both Chladni and Jenny, which was responded to with enthusiasm beyond scientific circles, was certainly due to the undeniable beauty of the images they produced. For Jenny these images were simply one means of expressing fundamental morphological principles behind virtually every identifiable physical form, as he states in the opening sentences of *Kymatic*.



[fig.8 Hans Jenny, Cymatics (1972)]

<sup>187</sup> Hans Jenny, *Kymatic*, vol. 2, 2 vols. (Basel: Basilius Presse, 1972).

<sup>188</sup> Jenny, *Cymatics*.

<sup>189</sup> Hans-Jürgen Stöckmann, “Chladni Meets Napoleon,” *The European Physical Journal Special Topics* 145, no. 1 (2007): 18–19; Dieter Ullmann, *Chladni Und Die Entwicklung Der Akustik von 1750-1860* (Basel: Birkhäuser, 1996), 115–16, n. In January 1803 Chladni met Goethe at the poet’s Park an der Ilm home in Weimar—and gave him a copy of his book – about which Goethe wrote to Schiller: "Doctor Chladni has arrived and has brought his complete Acoustics in a quarto volume. I have already read half of it and shall give you a somewhat agreeable oral report on its content, substance, method, and form." They met again in Goethe’s home in June 1812, following which Goethe made several positive public statements about Chladni.

<sup>190</sup> Harry Y. McSween, *Meteorites and Their Parent Planets*, 2nd ed. (Cambridge: Cambridge Univ. Press, 1999), 5.

<sup>191</sup> Torben Rees, “Ernst Chladni: Physicist, Musician and Musical Instrument Maker,” Whipple Museum of the History of Science, University of Cambridge, 2009, <http://www.sites.hps.cam.ac.uk/whipple/explore/acoustics/ernstchladni/>.

*Wherever we look in Nature, animate or inanimate, we see widespread evidence of periodic systems. These systems show a continuously repeated change from one set of conditions to another, opposite set. This repetition of polar phases occurs alike in systematized and patterned elements and in processes and series of events.*<sup>192</sup>

In describing his experimental method, Jenny shifts to a reflection on the relevance of cymatic principles to biological disciplines, writing

*...cardiology is, of course, "rhythmicity" par excellence. Neurology is a field of frequencies and the laws to which they conform... These systems have patterns of a serial nature and a dynamic of rhythmic impulses...the bioelectric expression of processes which are of a chemical, thermal, energetic, kinetic and structural kind... into the organization of the locomotive system, of the circulation and the respiration, and of nerve activity — all of which have their being in rhythmicity — living, experiencing man now implants himself. He lives in these fields in that he grasps them and acts with them, in them, on them, through them... By drawing attention to these relationships, the natural scientist is in no way straying from his proper domain; indeed it is in this way that the phenomenon of man can be grasped by the senses and by the intellect... If this method can fertilize the relationship between those who create and observe, between artists and scientists, and thus between everyone and the world in which they live, and inspire them to undertake their own cymatic research and creation, it will have fulfilled its purpose.*<sup>193</sup>

In a telling footnote, Jenny appends this statement with the following observation:

*In actual fact these studies lead by their very nature into fields which are beyond the scope of this work to discuss. Contact with artists, sociologists, psychologists, jurists and historians has shown us that...the idea of general periodicity...[has] validity in these fields. Rhythms in history; resonances, interferences, standing and traveling waves in human relations; the wave-like rise and fall of memories, thoughts and emotions in a periodic manner; poetry and music — all these are themes which have been illuminated by this concept of the basic triadic phenomenon during our conversations with numerous personalities. These views must be described elsewhere. But it must be stressed that these affinities are not merely metaphors or analogies, but involve the recognition of homologous [structurally similar] systems.*<sup>194</sup>

In the chapter *Cymatic Effects in a Wider Context* Jenny relates his precious experimental figures and descriptions to the world at large, stating:

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<sup>192</sup> Jenny, *Cymatics*, 17.

<sup>193</sup> Jenny, 125–26.

<sup>194</sup> Jenny, 126.

*We are not in any way concerned with analogies here; we are not saying, for example, that things look similar, or that there is a wider resemblance between this phenomenon and that. If there is in fact to be an actual connection between one set of relationships and another, what we must have is not analogy but homology or identity of nature.*<sup>195</sup>

Here Jenny reflects that the first chapter, in addressing the relationship of a whole and its parts, had concluded with the observation that the part is ‘a modified version of the whole,’ which he states is the theme ‘to which we must revert when we discuss the relationship[s] between the various fields.’<sup>196</sup> Taking us straight back to Blake’s poem, with which we began, Jenny describes a conversation between Albert Einstein and the German writer and philosopher Alexander Moszkowski in which they arrived at the following question: “Supposing it were possible to find the reason for every property of a grain of sand, would this mean that one had plumbed the entire universe? Would there still not be something left unsolved for a complete understanding of the world?” In gleeful confirmation of Blake’s poetic assertion, Jenny reports that Einstein’s answer was ‘an unreserved yes’, “For a full scientific understanding of what goes on in the grain of sand would be possible only if one knew the exact laws governing events in time and space. These laws - differential equations - would be the most general of all laws from which the essence of all other events must be deducible.” To which Jenny adds,

*...indeed the world is present in the grain of sand. If we want to acquire a complete knowledge of it, then we must know about gravity, nuclear forces, electricity, magnetism, mechanics, thermodynamics, etc. We have already mentioned the living cell...respiration, metabolism, regulations, procreation, plastic and metamorphic potentiality, circulation - in brief, the whole inventory of vital processes - are enacted in the individual cell.*<sup>197</sup>

On the basis of these premises ‘common features, uniformities, and essential affinities in the various regions of nature’ become evident. Cymatics, he says, ‘is, so to speak, inherent in the various regions of the universe’, characterized by ‘structures, pulsations, dynamics and kinetics’, he specifies that ‘inversions also occur.’<sup>198</sup> Echoing the several lists of complementary opposites we have already considered, he provides us with the following:

*Antagonisms and synergisms.  
Inhibition and excitation.  
Damping and stimulation.  
Suppression and liberation, etc.*<sup>199</sup>

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<sup>195</sup> Jenny, 239.

<sup>196</sup> Jenny, 239.

<sup>197</sup> Jenny, 240.

<sup>198</sup> Jenny, 241.

<sup>199</sup> Jenny, 274.

Having covered virtually every conceivable field – including extensive reflections on water and hydrology – he brings us full circle, arriving at the elder Hans Jenny’s realm of geology, which comprises the greater part of the chapter. Stating that it is not his wish to ‘invoke seismic processes as a *deus ex machina*’ – he specifies that in addition to such conventionally geological factors as ‘pressure, temperature, incline, sedimentation, etc.’ must be added the factor ‘seismic vibration’. Reflecting on geologist’s observations on the direct morphological and procedural connections between sea waves and mountain waves, he emphasizes the importance of adopting an attitude that ‘precludes simply carrying the processes over into geology’:

*There can be no question of our imposing our views on anyone. What we have found in the field of acoustic wave phenomena must be encountered in other fields in an equivalent form, and research will, in its own interests, speak the language of cymatics. There must be cymatics in geology (orogenesis), in astrophysics, in meteorology, etc. Now it might be said that we may leave the geologists, astrophysicists, and biologists to uncover these concatenations for themselves. The point is, however, that since vibrational effects are in fact linked together, a knowledge of their phenomenology alerts the eye to their different categories; it provides clues and guiding patterns. Above all it must be stressed once again that a kind of special sense, a cognitive faculty, is acquired with a particular awareness for these connections.*<sup>200</sup>

It is precisely this point that I intend to emphasize throughout the following chapters – the training of architects to reflexively anticipate that for each action there is an ‘equal and opposite reaction’. Acknowledging that cut and fill, high and low, hot and cold are inter-related phenomena. We don’t make anything – we simply push things around.

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<sup>200</sup> Jenny, 240.

*vii. The Limits Of Polemicism – From Systems Theory To Formal Systems*  
or, *What We Learn From Newton's Polemicists*

*“It is easy to begin polemics; it is much harder to stop them, to decide that enough is enough.”<sup>201</sup>*

Goethe’s biographer Sepper observes that the poet essentially refrained from polemicizing after publishing his polemic with Newton in 1810.

*He even told Eckermann [his publisher] that, if for reasons of space it was necessary to eliminate something, the polemical part of Zur Farbenlehre could be dropped – not because it had been wrong or unnecessary, but because it had served its historical purpose of loosening the stranglehold of the Newtonian theory of colors. The historical part on its own contained sufficient polemical material, and the real key to Zur Farbenlehre was in any case the didactic part.<sup>202</sup>*

Citing Goethe’s statement, “At bottom all polemical action is against my proper nature, and I take little pleasure in it,” and acknowledging that ‘we probably do not need to question the basic sincerity of this disclaimer,’ Sepper nevertheless expresses skepticism regarding Goethe’s claim that did not at all enjoy ‘being on the attack after twenty years of ridicule and neglect from the *guild of physicists*.’ Here Sepper must be quoted at length, as his observations will be proven to be of central importance as we re-enter the discipline of architecture on the next chapter:

*Yet when we observe how the polemical part [of Goethe’s Farbenlehre] has ever since encouraged warfare between proponents and opponents, when we see how many of Goethe’s votaries have shown more ability in lashing out at Newton than in doing service to knowledge’ when we realize how much the polemicizing has obscured the central purposes of Zur Farbenlehre, we may doubt Goethe’s wisdom not so much in writing a critique of Newton’s Opticks - polemic in the high sense - as in giving reign to the passions and resentments that had festered in his spirit for two decades - polemic in the baser but unfortunately more common sense.*

*No matter how justified or true, polemics appeal to our lower natures and induce us to act against our better judgment. Like all warfare, polemics tend to be demoralizing, in that they lead us to act like our enemies. Perhaps Goethe’s willingness to omit the polemical part from a reissued Zur Farbenlehre was tacit admission that there is something wrong with the polemical attitude when it gets out of hand - and there is little that gets out of hand so quickly. The polemical mode itself works against Goethe’s fundamental insights into the character and history of the natural sciences and their proper methods.<sup>203</sup>*

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<sup>201</sup> Sepper, *Goethe Contra Newton*, 183.

<sup>202</sup> Sepper, 183.

<sup>203</sup> Sepper, 183.

Goethe played a central role in many of the scientific, artistic, political and civic movements of his era. We will return to Goethe on several occasions, intermittently, and particularly in the chronological section [2\_Civic Design] thanks to his central role in the parks movement, anticipating, as few others did, the City Beautiful Movement's greatest innovation: *park systems*. The invention of park systems was a pioneering accomplishment in democracy, in landscape architecture, in ecology – and in Goethe's hands, park systems even were a pretext for literary innovation.<sup>204</sup>

Goethe had direct relationships with virtually every one of his noteworthy contemporaries – including Alexander von Humboldt (1769-1859), Novalis (1772-1802), Friedrich Hegel (1770-1831), and many other similarly enduring figures from his extensive and interdisciplinary Weimar community. His exchanges and ‘various common undertakings’ with his Weimar colleagues contributed to a movement subsequently designated Weimar Classicism, lasting thirty-three years from 1772 until 1805. Goethe was longer lived than the movement, as is often the case, and following his passing at 82 in 1832 – in his park house in Weimar – his influence continued to grow. For the moment it is sufficient to point out that even Charles Darwin (1809-1882) credits Goethe’s studies of *morphology* - specifically his 1786-1795 theories on metamorphosis and variation in the common descent of species - as being one of three earliest forerunners to his own theory of the origin of species, modestly describing his own work as representing

“...rather a singular instance of the manner in which similar views arise at about the same time that Goethe in Germany, Erasmus Darwin in England, and Geoffroy Saint-Hilaire in France, came to the same conclusion on the origin of species, in the years 1794-95...We see that our researches on the fixity or the variation of the species, lead us directly to the ideas issued by two men justly famous, Geoffroy Saint-Hilaire and Goethe.”<sup>205</sup>

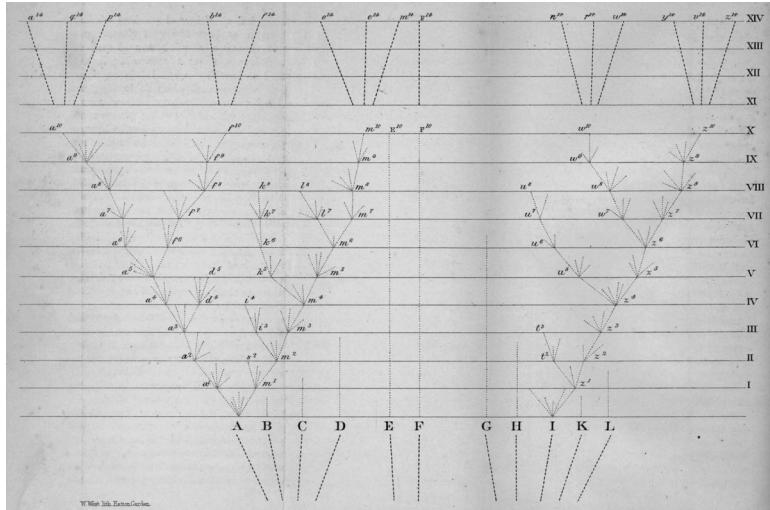
This suggestive statement, made in a footnote that only appears in the third edition of Darwin’s evolutionary treatise, is memorable because of its apparent graciousness – like Jenny’s open-ended ellipses, only Darwin’s are at the front end of the equation. Only Darwin doesn’t actually provide an equation. In fact Darwin was ‘not a fan of mathematics’ and his seminal treatise on evolution does not

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<sup>204</sup> Johann Wolfgang von Goethe, *Elective Affinities: A Novel*, 1834th ed. (New York: Collier, 1809), n. Goethe’s novel *Elective Affinities* is at least partially biographical; its narrative informed by Goethe’s first hand experience describing his wife’s precious private gardening in contrast with his early public park system, established in interdisciplinary collaboration with artists, ecologists, sylviculturalists and others.

<sup>205</sup> Charles Darwin, *On The Origin Of Species By Means Of Natural Selection, or the Preservation Of Favoured Races in the Struggle for Life*, 3rd ed. (London: John Murray, 1861), xiv, n. Robert J. Richards of University of Chicago asserts that Darwin learned of Goethe’s notion of “transmutation” of species theory from Geoffroy Hilaire; see: Robert J. Richards, “Did Goethe and Schelling Endorse Species Evolution?,” in *Romanticism and Evolution* (The University of Western Ontario, 2011), 25.

contain a single equation.<sup>206</sup> Rather he provides a single diagram illustrating his conception of evolution as a process of transformation involving common descent – a conception duly credited, as of his third edition footnote, to Goethe and Saint-Hilaire.<sup>207</sup>



[fig.9\_Charles Darwin, *On the Origin of Species*, third edition, p.109]

Diagram illustrating evolution as a process of transformation involving common descent.

The essential correlation between Darwin's statement and his diagram are the oppositional terms 'fixity' and 'variation' – the diagram simply illustrates fixity with a single line, and variation with a pair of lines like a 'V'. The diagram turns out to have been more reliable than the words, in this case, as people tended to regard the term *fixity* as absolute – in the sense of projecting religious dogmas onto the term – subsequently providing generations of contentious types with a pretense for polemics. One is prompted to want to amend Darwin's phrase '*the fixity or the variation*' to read '*the fixity and the variation*' – a more precise description of the diagram, and putting the words explicitly in line with the contemporary recognition of these terms as being an opposition that is relative, rather than absolute. Unlike certain of his contemporaries, like Georges Cuvier (1769-1832), who explicitly argued for *absolute fixity*, Darwin's beliefs – rather reassuringly – are generally acknowledged to have implicitly been in line with current understanding of *relative fixity*.<sup>208</sup>

But that part of Darwin's observation regarding 'the manner in which similar views arise at the same time' is rather disturbing: it suggests such phenomena as *groupthink*, and *collective consciousness* –

<sup>206</sup> Peter Schuster, "The Mathematics of Darwin's Theory of Evolution: 1859 and 150 Years Later," in *The Mathematics of Darwin's Legacy*, ed. Fabio A. C. C. Chalub and José Francisco Rodrigues, Mathematics and Biosciences in Interaction (Springer Basel, 2011), 2, [https://doi.org/10.1007/978-3-0348-0122-5\\_3](https://doi.org/10.1007/978-3-0348-0122-5_3).

<sup>207</sup> Charles Darwin, *On The Origin Of Species By Means Of Natural Selection, or the Preservation Of Favoured Races in the Struggle for Life*, First Edition (London: John Murray, 1859), 108, n. Darwin's first version of this diagram was a notebook sketch from 1837, made more than two decades before publication of *Origin of Species*.

<sup>208</sup> Mark Holowchak, "Realism vs. Antirealism," in *Critical Reasoning and Science: Looking at Science with an Investigative Eye* (University Press of America, 2007), 57.

both of which, indeed, have a place in the contemporary nonlinear scientific paradigm.<sup>209</sup> Interestingly, some of what we know about Darwin's thoughts on the matter comes from his correspondence on the matter with the polymath Ernst Haeckel (1834-1919).<sup>210</sup> We will be confronted with similar reflections from other major scientific figures in subsequent chapters, and – making note of these along the way – will attempt to unpack their most relevant connotations for civic design, unsettling though they be, in the final section.

Blake's role moving forward is no less relevant, but is perhaps less obvious. The depth of his conceptions, and the breadth of their dissemination – thanks in part to his early embrace of print media – means that they find a certain assured resonance when referred to in subsequent chapters, as they will be. But Blake is also a kind of genuine enigma, whose opaqueness tended toward the sublime:

*There is a Negation, & there is a Contrary  
The Negation must be destroyed to redeem the Contraries  
The Negation is the Spectre  
- Blake, Milton, 40:32-34*<sup>211</sup>

From his youth, Blake claimed to have seen visions at Peckham Rye, a 54 acre open space commons in London, and it was clearly an important spot in the imaginative and creative development of the poet. When he was eight, he reported seeing the Prophet Ezekiel under a bush, and he at ten years old he had a vision of angels in a tree. According to his biographer, Alexander Gilchrist, 'sauntering along, the boy looks up and sees a tree filled with angels, bright angelic wings bespangling every branch. Returned home he relates the incident, and only through his mother's intercession escapes a thrashing from his honest father, for telling a lie.'<sup>212</sup> A month later, he had yet another vision of angels walking towards him through the rye.<sup>213</sup>

These experiences were of importance for Blake's later life as an engraver, artist and poet – he even invented a new type of engraving after a dream in which he said his dead brother Robert had

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<sup>209</sup> Lynn Margulis and Arjen Mulder, "The Basic Unit of Life," in *The Politics of the Impure*, ed. Joke Brouwer (V2 publishing, 2010), n. Notable here is the work of Lynn Margulis on mitochondrial DNA, also; Rupert Sheldrake, *A New Science of Life: The Hypothesis of Morphic Resonance*, 1995th ed. (Rochester, Vt: Park Street Press, 1981), n. We will return to these subjects in 3.2.1\_Landscape Polemicism.

<sup>210</sup> Ernst Haeckel, "Letter to Charles Darwin," August 10, 1864, n. Ernst Haeckel further corresponded with Darwin about Goethe's theories in 1868 (Jun 22 and Nov 9) and again in 1871. Regarding Goethe as one of the principal founders of the theory of common descent see, for example, Haeckel 1866, 2, where Haeckel refers to Goethe's essays on morphology (Goethe 1817–24), and to his review of Saint-Hilaire 1830 (Goethe 1830–2), Darwin Correspondence Project, Cambridge University.

<sup>211</sup> William Blake, *The Prophetic Books of William Blake: Milton*, ed. Eric Robert Dalrymple MacLagan and Archibald George Blomefield Russell (London: A.H. Bullen, 1907), 44, note: 40:32–34, as cited in; Ault, *Visionary Physics*, 182.

<sup>212</sup> Alexander Gilchrist, *The Life of William Blake* (John Lane, The Bodley Head, 1907), 7.

<sup>213</sup> David Thorley, "London's Literary Landmarks - Blake on Peckham Rye, London," 2007, <http://www.hotel-assist.com/literary-london/blake-on-peckham-rye.html>.

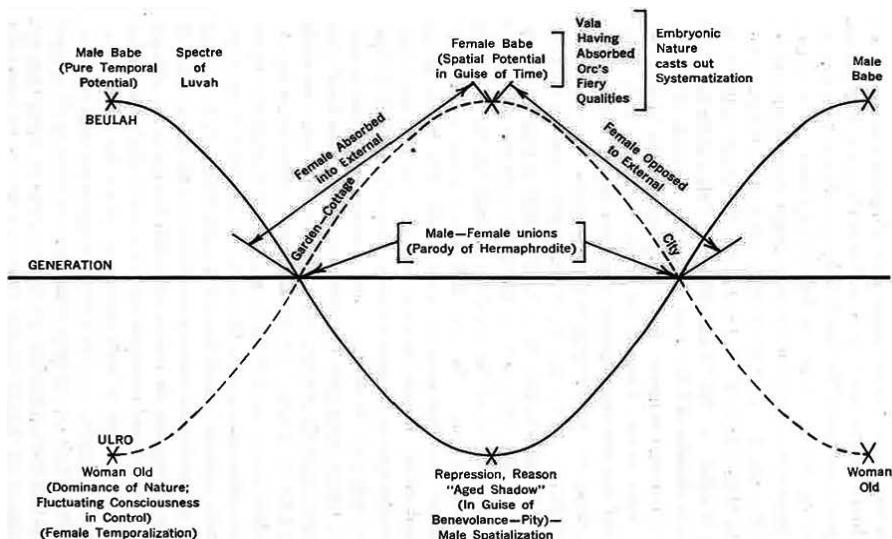
explained it to him – and his extraordinary paintings, engravings, and long illustrated poems sold at exorbitant prices. Yet it seems Blake's own parents disbelieved in his visions. Robert Hunt was one of the few contemporary critics attentive to Blake, described the paintings exhibited in Blake's only solo exhibition as demonstrating ‘the effects of insanity having lately spread into the hitherto sober region of Art.’ Blake himself, he called ‘an unfortunate lunatic.’<sup>214</sup>

Attempting to decode the enigmatic Blake, biographer Donald Ault describes his interpretation of Blake's ‘two-way’ cosmology – which he regards as being at the heart of his polemic with Newton – in his conclusion to *Visionary Physics: Blake's Response to Newton*:

*The contraries of Blake's Eternity are 'positive,' while clearly the character of Negations is negative...*

*Negations are not Contraries: Contraries mutually Exist: But Negations Exist Not.*<sup>215</sup>

He goes on to identify ‘the ultimate Contraries of Eternity’ as ‘coherence and identity’ which are mirrored in the structure of gender identity. He states that Blake characterizes life in ‘Eden’ as the space within which ‘the dialectical interaction of opposites in time’ is played out, and concludes, “This structure requires that the opposition exist in its own right.”<sup>216</sup> Ault himself clearly finds these statements rather puzzling, yet compelling enough to prompt him to penetrate them more deeply by creating a conceptual diagram, with which he attempts to provide an interpretive representation of Blake's ‘two-way’ cosmology.



[fig.10\_Donald Ault, after Blake, *Visionary Physics*, p.187, 191] Two-way male/female temporal diagram.

It is a fascinating diagram, and will prove of interest later, but despite Ault's sincere effort he admits that the material remains relatively impenetrable to him – and one has the sense that the biographer,

<sup>214</sup> Robert Hunt, “Exhibition Review,” *The Examiner*, September 17, 1809.

<sup>215</sup> Ault, *Visionary Physics*, 181.

<sup>216</sup> Ault, 176–77.

exhausted, has reconciled himself to it. Certainly other of Blake's sincere admirers, including Olmsted, Geddes and Wright, consistently express a similar bewilderment at his vision. For example Frank Lloyd Wright, who by far among these three cites Blake the most extensively, states that he had read everything Blake had written, and while he includes both Goethe and Blake in his list of 'Required Reading for Students of Broadacre City'<sup>217</sup> the architect turns to Blake for his preferred definition of beauty, writing at the end of his life in *A Testament*:

*Romanticist by nature - self-confessed - I am pleased by the thread of structural consistency I see inspiring the complete texture of [my] work...often called 'engineering-architecture'...So the poet in the engineer and the engineer in the poet and both in the architect may be seen here working together, lifelong. William Blake – poet – has said "exuberance is Beauty." It took me some time to know just what the great Blake meant when he wrote that...Blake meant that Beauty always is the consequence of utter fullness of nature in expression: expression intrinsic. Excess never to be mistaken for exuberance; excess being always vulgar...The more a design is creative revelation of intrinsic nature, whatever the medium or form of expression, the better.*<sup>218</sup>

Just so, even Wright's biographers cite Blake when attempting to address the architect's own polemic tendencies – as Lionel March perceptively concludes his own reflections on the architect in *An Architect in Search of Democracy*:

*It is true that much of what Wright said and did challenges conventional wisdom. But we should remember those words of Blake that Wright knew so well: without contraries there can be no progress. There is much good sense in his thought, and even If we disagree we would do well to heed his criticism. Few will disagree, however, that his great contribution has been to show us how to build so as to enhance the landscape rather than to intrude upon it. Only as that lesson is learnt through action, by experiment, and with tolerance will Broadacre emerge as the dominant pattern, and will the individual, and society as a whole, become the guardians of the natural environment, masters of the technological and makers of a truly democratic culture.*<sup>219</sup>

March's farsighted conclusion echoes Wright's own previously cited interpretation of Blake, which interpretation, again, Wright takes pains to point out was arrived at only after having spent years with the enigma that was Blake.

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<sup>217</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings vol.5: 1949-1959* (Random House, 1995), 211, n. The twelve "authors" listed on this stenciled exhibition panel, part of the original Broadacre City exhibition of 1935 are "Laotze, Jesus, Spinoza, Voltaire, Walt Whitman, Henry George, William Blake, Louis Sullivan—not forgetting Frank Lloyd Wright, Nietzsche, Thoreau, Emerson. This panel is matched by another stenciled panel with the identical format, also including Blake and several of the others previously listed: "Broadacre City Commemorating - Moses, Sparticus, Heraclitus, Goethe, Mazzini, Count Tolstoi, Prince Peter Kropotkin, Silvio Gesell, Henry Thoreau, Henry George, William Blake, Louis Sullivan—not forgetting Frank Lloyd Wright, Thorstein Veblen, Edward Bellamy.

<sup>218</sup> Wright, 5:157.

<sup>219</sup> Lionel March, "An Architect in Search of Democracy: Broadacre City," in *Writings on Wright*, ed. H. Allen Brooks (Cambridge: MIT Press, 1983), 206.

Walter Russell, this last of Newton's polemicists, will himself appear again as a clarifying advocate of Blake's 'two-way' cosmology – and again, later, in his role as a collaborator in park systems. (*2.3 Park Systems*) It is also interesting to note that in the course of Russell's polemic exchanges in the New York Times, correspondent G.P. Hershey weighed in as a mediator, attempting to validate both sides of the scientific polemic by citing the work of three architects:

*... the contributions of science to art and art to science are relative with respect to the analysis and synthesis of primitive symbolism. The questioning of Newton's laws and Kepler's extensions is a timely and healthy inquiry directed at contemporary cosmogenetics. The assimilation of knowledge within an individual experience, therefore, can be regarded rightly as either static or dynamic, can be applied as a simple correlation of established facts, or can be accepted as a means for concentrating on and contributing to progressive thought...the pioneer achievement of Frank Lloyd Wright, in the field of architectural form, design and the adaptation of materials...[illustrate] not only the functional relation of the engineer, the architect and the draftsman within the creative accomplishments of an individual, but also...[the] contributions to modern architectural practice which may be attributed almost entirely to an understanding of Newton's dynamics. The catalogue of the Harvard Society for Contemporary Art states that Buckminster Fuller's dymaxion house is "the first complete attempt in architectural design to acquire a symbolism of the fourth dimension, as the designing method is literally from the 'inside out' on a radionic, time, space and quantum basis." Mr. Fuller's approach to his problem is through spherical geometry and the application of simple dynamics to the evolution and introduction of new materials in a logical relation to height, bulk and weight requirements. "Roadtown" of Edgar Chambless, a practical conception of continuous structure within which is integrated all ways of communication, and the utilities of service, along with a balanced social system, constitutes a recognized application of the laws of centripetal and centrifugal social force (the centralization and decentralization of population) and is based upon social dynamics.<sup>220</sup>*

The statement is suggestive of the relevance we will find in Russell's work in subsequent chapters, notably related to his starring role as a sculptor creating memorials within *civic designer's linear park systems* – much as Goethe himself had done a century earlier in his *Park an der Ilm* in Weimar. Throughout the following chapters I intend to demonstrate that these regional park systems are informed by scientist's mathematically expressed periodicities and are supportive of artist's social ambitions. By relating both rural and urban, and creating space for both nature and culture, *park systems* are the culmination of systems theory as it pertains to architecture and landscape – representing the formal embodiment of both art and science.

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<sup>220</sup> Hersey, "Einstein Admits Unalterable Can Be Altered: One Holds Views of Both Dr. Jackson and Mr. Russell Are Borne Out."

### *viii. Conclusion*

In each of the cases in which Newton's work was engaged posthumously by the various polemicists considered here – namely Goethe, Blake and Russell – the purpose was a reminder and direct validation of his own third law of motion, stating that for every action there is an equal and opposite reaction. As with the contemporary research of Garrett Lisi and other physicists working to reconcile cosmic principles of the very large with quantum principles of the very small, the work of both nonpolemicist Hans Jenny's – the pedologist and the cymaticist – effectively illustrate the importance of conceiving of these equal and opposite reactions in terms of cycles. These cycles are essentially nonlinear expressions, providing both the underlying, foundational basis of form, and the cumulative, overarching manifestations of form.

Thus the exchanges of art and science are open-ended and ongoing – dialogical rather than dialectical – but it is important to acknowledge that there are certain advantages on either side, as pointed out by physicist Richard Feynman when he observed that having a scientific view of things doesn't preclude an appreciation of beauty, taking the example of Blake's flower:

*Science, knowledge, only adds to the excitement, the mystery, and the awe of the flower. It only adds. I don't understand how it subtracts.<sup>221</sup>*

Nearly fifteen years later, in a book of his own artwork, Feynman returns to his earlier statement and elaborates on the matter:

*There are complicated actions of the cells, and other processes. The fact that the colors of the flower have evolved in order to attract insects to pollinate it is interesting; that means insects can see the colors. That adds a question: does this aesthetic sense we have also exist in lower forms of life?<sup>222</sup>*

This is a question we will take up in the following chapter, specifically as it pertains to the biological analogy in architecture. That loaded phrase 'lower forms of life' makes it clear that Feynman's question pertains to evolutionary biology, and might be paraphrased 'is beauty an inherent evolutionary factor in nature?' Britain's first evolutionary biologist, polymath Patrick Geddes, asserted, "Anyone who deals with animate nature cannot get past the fact of beauty – it is as real in its own way as the force of gravity."<sup>223</sup> In the following chapter Geddes is introduced as one of our key protagonists, along with

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<sup>221</sup> "Richard P Feynman - The Pleasure of Finding Things Out," *BBC Horizon* (London: BBC, 1981), n. On a pedagogic note, Feynman attributed his scientific aptitude to his early exposure to the scientific attitude of his father, stating: "We had the Encyclopedia Britannica at home. And even when I was a small boy he used to sit me on his lap and read to me from the Encyclopedia Britannica."

<sup>222</sup> Richard Phillips Feynman, *The Art of Richard P. Feynman: Images by a Curious Character* (Psychology Press, 1995), 43.

<sup>223</sup> J. Arthur Thomson and Patrick Geddes, *Life: Outlines Of General Biology*, vol. 1 (New York: Harper & Brothers, 1931).

Frederick Law Olmsted and Frank Lloyd Wright, where we will consider the possibility of a biological basis for the aesthetics of design.

As Feynman suggests, and as our Hans Jenny's have illustrated, the idea of beauty can provide a common ground for science and art. The notion of 'the elegant universe' is one of the great popular images of this shared vision, representing in aesthetic terms the precision of the essentially clockwork order suggested by such enduring scientific accomplishments as Newton's laws and Einstein's equations. The entire set of known, self-consistent laws – represented by the mathematics relating quantum, biologic and cosmic principles – are even referred to by physicists as 'the landscape', a term derived from the cultural arts. But lest we be swept away by the sublime resolution of it all, we should recognize that this perceived common ground – the landscape, in both disciplines – is still contested territory.

### 1.1.2 The Biological Analogy – On the Animation of the Inorganic

*The biological analogy embodies a great many periodicities, both explicitly and implicitly, the emerging discipline of sociobiology suggesting that its correlations are literal, as well. From cycles to circulation, an evaluation of various applications of the biological analogy, noting rhythmic temporal oscillations and their role in well-being for individuals, communities, and regions.*

#### i. Introduction

The nonlinear paradigm illustrated in theoretical physics – as has been shown in the preceding chapter by the work of Garrett Lisi in particular, and the theory of Supersymmetry in general – is further demonstrated in the biological sciences by such neuroscientists as J.A. Scott Kelso and David A. Engström, whose book *The Complementary Nature* describes ‘coordination dynamics’ – a mathematically expressed theory reconciling the scientific language of ‘states’ with the dynamic language of ‘tendencies’ – which they argue is capable of explaining why nature (and humans) appear to partition things, events and ideas into pairs.<sup>224</sup> Their work attempts to provide a methodology that can be applied to areas beyond the neurosciences, describing how either/or thinking tends to obscure the dynamic reality constituting life, and arguing that these realities are based on complementary - rather than oppositional - paired relationships.<sup>225</sup>

Again, we recall Nobel Prize-winning physicist Richard Feynman’s attitude regarding the threshold of the artist’s prerogative – the assertion of artistic license is qualified by the degree to which the artist’s work has open ellipses, as it were, allowing for and even inviting additional factors. By ‘additional factors’, including beauty, Stephen Jay Gould suggests we look under our noses – admonishing his fellow evolutionary biologists, to paraphrase, that ‘it is a pity so many researchers are preoccupied with what changes – equally important, and possibly even more important, is what stays the same.’<sup>226</sup> This is ostensibly the purview of theoretical physics, which occupies itself with working out the mechanics of the universe on the basis of ‘cosmological constants’. The disciplinary relationships between quantum physics, biology and cosmology hinge on mathematics – a discipline that has become so advanced as to be accessible only to the supremely literate and highly trained.

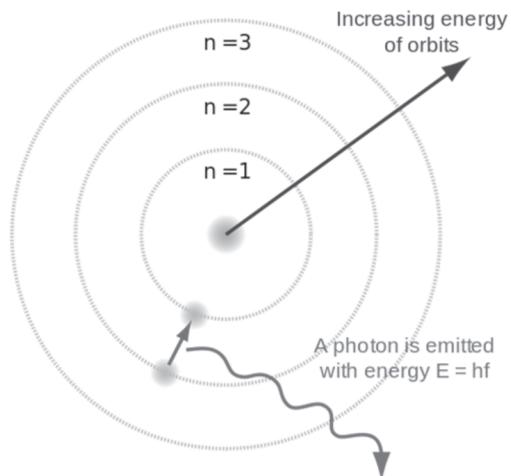
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<sup>224</sup> J. A. Scott Kelso and David A. Engstrom, *The Complementary Nature* (MIT Press, 2006), 90–91.

<sup>225</sup> Ibid., 78–79, note: also see *Evolution of Designs* (Steadman 1979/2007) regarding physicist Leonard Susskind’s statement: “We’re telling them ‘No, it is contingent on the environment - it is different over there, and different over there.’” Also regarding Einstein’s mistaken certainty regarding ‘the myth of uniqueness’ - constants of nature are essentially contextual, ‘it is a Rube Goldberg machine.’ etc.

[https://www.edge.org/conversation/leonard\\_susskind-the-landscape](https://www.edge.org/conversation/leonard_susskind-the-landscape), 7:20, also see Susskind on ‘the landscape’ vis limit of ‘elegant universe’, and ‘the possibility of an absolute’ equation, same source as previous. Also see: Spyros Papapetros, *On the Animation of the Inorganic: Art, Architecture, and the Extension of Life* (Univ. Chicago Press, 2013).

<sup>226</sup> Stephen Jay Gould, *Punctuated Equilibrium* (Cambridge: Harvard University Press, 2009).



**[fig.1\_Neils Bohr's diagram]** Illustrating his analogy between the solar system and atomic structure, which while it has several limitations, and strictly speaking is not accurate, the Bohr Model was an important step in the development of atomic theory. *Wikimedia Commons*

limited sense, it provided a useful step in the right conceptual direction.<sup>227</sup>

Pure mathematics, on the other hand, is the study of entirely abstract concepts. While this is a necessary step for mathematical disciplines, the risk of detaching purely mathematical considerations from their contextual implications can be illustrated by the extensive mountaintop regions recently dynamited in order to establish a single fiber-optic cable between New York and Chicago. This 825 mile, 8 billion dollar infrastructural corridor was built at the suggestion of an automated computer algorithm, created by quantitative mathematicians working on Wall Street, which calculated that it would provide a three microsecond (three millionths of a second) improvement on the transmission speeds possible by satellite, thus providing Chicago commodity traders and trading algorithms with an edge they otherwise would lack.<sup>228</sup> In the short term cost-benefit analysis performed by market investors, significant long-term environmental costs were outweighed by short-term economic advantages. In fact by the time the work was half complete satellite transmission speeds had been improved – rendering the entire effort futile.<sup>229</sup> Analogical thinking, based on principles that might rightly be regarded as common-sense, can help to avoid the devastating consequences of such unrestrained abstraction.

Nevertheless, by employing analogical thinking those of us who are not so trained can derive meaningful insights, and even ‘inspiration’, for our own work from the work of these specialists. To make an analogy is a cognitive process by which meaning is transferred from a relatively known subject to one less well known. The term has its origin in the Greek *analogia*, meaning ‘proportion’. For instance, in his early work physicist Niels Bohr drew an analogy between the solar system and atomic structure. He developed a model of the atom with the nucleus at the center and electrons in orbit around it, which he compared to the planets orbiting the sun - work for which he subsequently won the Nobel Prize in 1922. Although this analogy is now known to be accurate only in a very

<sup>227</sup> “Bohr’s Hydrogen Atom,” Chemistry LibreTexts, October 2, 2013, [https://chem.libretexts.org/Core/Physical\\_and\\_Theoretical\\_Chemistry/Quantum\\_Mechanics/09.\\_The\\_Hydrogen\\_Atom/Bohr%27s\\_Hydrogen\\_Atom](https://chem.libretexts.org/Core/Physical_and_Theoretical_Chemistry/Quantum_Mechanics/09._The_Hydrogen_Atom/Bohr%27s_Hydrogen_Atom).

<sup>228</sup> Kevin Slavin, “How Algorithms Shape Our World,” July 2011.

<sup>229</sup> Jennifer Dutcher, “Kevin Slavin: How Algorithms Shape Our World” (Berkeley School of Information, February 4, 2014), n. Such exercises in technological determinism clearly have real world economic as well as ecological impacts, as Dutcher notes in her report on Slavin’s research, arguing that “we’re creating systems through coding that may impact us in ways that we didn’t anticipate, and can’t control — as in the Wall Street ‘Flash Crash of 2:45, when 9 percent of the entire U.S. stock market disappeared in five minutes. Nobody ordered it, nobody asked for it, and nobody could control it. The algorithms took over, and humanity was locked out.” <https://datascience.berkeley.edu/kevin-slavin-algorithms-shape-world/>.

Likewise, analogy has its own limitations, which will prompt a variety of questions for further consideration as we proceed. Among these perhaps none is more radical in the context of the biological analogy than the question of whether and to what degree mechanically engineered creations – like bridges and buildings – are capable of life. Can a city be said to have life? Along with apparently inanimate things like rocks and planets, buildings and infrastructure clearly do have a ‘life cycle’ in analogical terms. Of course landscapes and ecological habitats possess these living qualities to a significantly more apparent degree – and to speak of a landscape’s life-cycles we are again speaking literally: it is a homology, not an analogy.



[fig.2\_Mountaintop removal] Demolition charges used to remove a mountain ridge to establish faster communications infrastructure between New York and Chicago. *Public domain*

Artists can learn from scientists to better address context by similarly adopting heuristics for design, much as scientists develop heuristics for diagnostic purposes. Whereas biology operates in a largely analogical mode in architecture, landscape architecture provides a direct link to the biological sciences. Patrick Geddes was considered Britain’s first ecologist, and his sketchbooks are filled with what he called his ‘thinking machines’: diagrams and annotations in red and blue pencil – the common graphic representation then made of blood circulating through the body, red for oxygenated and blue for deoxygenated – suggesting his attempt note only to describe living processes, but to give life to the ideas themselves. While this poetic notion may strike some as odd, or even as an artistic indulgence, such poetic references are treated quite seriously by such biologists as Lynn Margulis. Her work in the emerging field of chronobiology examines periodicities - or cyclic phenomena - in living organisms, and their adaptation to solar and lunar rhythms, as well as the lifecycles of the nonliving materials that constitute their environment.<sup>230</sup>

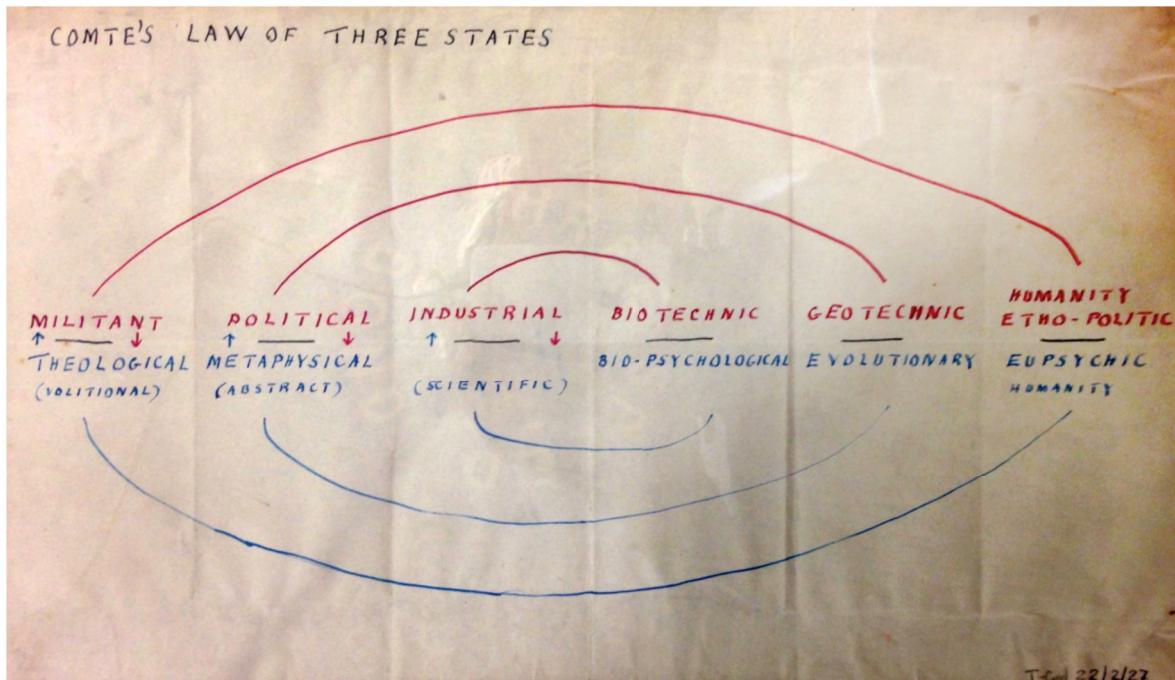
Current enthusiasm for architectural ‘autonomy’ and for urban ‘self-sufficiency’ tends to construe the implications of the biological analogy along the lines of ideas like *autopoiesis* (from Greek αὐτό- (auto-), meaning "self", and ποίησις (poiesis), meaning "creation, production"), which refers to a system capable of reproducing and maintaining itself.<sup>231</sup> Such ideas as autonomous architectural *autopoiesis* play into a one-sided urban myopia and yield a nature-dominating narrative that distorts reality – as worldwide living standards rise, the demand for natural resources is accelerating a familiar

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<sup>230</sup> Margulis and Mulder, “The Basic Unit of Life.”

<sup>231</sup> Patrik Schumacher, *The Autopoiesis of Architecture: A New Framework for Architecture*. Vol.1. Chicago: Wiley. p.433., vol. 1, 2 vols. (Chicago: Wiley, 2011); Pier Vittorio Aureli, *The Project of Autonomy: Politics and Architecture Within and Against Capitalism* (Princeton Architectural Press, 2008).

pattern: cities eat rural regions, and rural eats wilderness. As global urban accelerates, the notion that cities ought to become self-sufficient has been widely popularized in both the architectural profession and in academia, and while designers are busy fine-tuning daydreams of ‘self-sufficient cities’, the rural regions and ecological systems now supporting real cities are being fragmented and erased in vast swaths – often taking once thriving cities along with them and further accelerating centralized urbanization.



[fig.3\_Geddes's 'Thinking Machines'] Image: Jacqueline Tyrwhitt collection, Strathclyde University, Glasgow.

But ecology, society and economy are not the either/or variables they are often portrayed as being. In light of the work of chronobiologists like Margulis the opposite seems more likely – there is no society without ecology, and no economy without society: each is embedded in context. *Allopoiesis*, the opposite of *autopoiesis*, is the process whereby a system produces something other than the system itself, like a crystal, or an assembly line, where the final product is distinct from the means of production. Thinking that cities come from cities, or that architecture comes from architecture, is somehow not quite right. To quote pianist Keith Jarrett as regards music, “It just isn’t true. Music doesn’t come from music – it comes from everything but music.”<sup>232</sup> In 45 BC Cicero conceived of rural and urban regions as in a dynamic balance involving existing landscapes: rural and urban were seen as mutually interrelated counterparts of the same civilizing force, polarities of an ongoing initiative Cicero termed *second nature*.<sup>233</sup> In contrast to society’s current urban myopia, and in line with Cicero’s *second nature*, contemporary recognition of the importance of context is again broadening the conceptual scope of design.

<sup>232</sup> Mike Dibb, *Keith Jarrett: The Art of Improvisation*, Documentary, 2005.

<sup>233</sup> Marcus Tullius Cicero, *De Natura Deorum: The Nature of the Gods* (New York: Oxford University Press, 2007), 102.

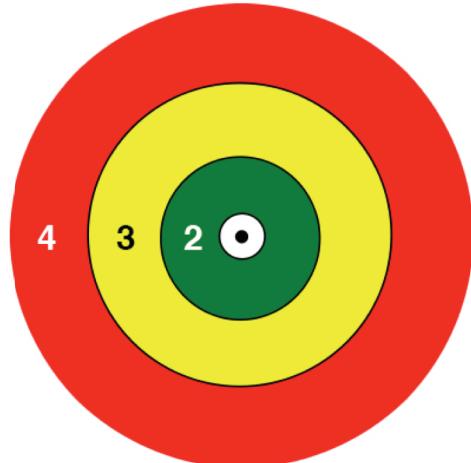
## *ii. The Living City: An Alternative to Urbanism*

Frank Lloyd Wright's *The Living City* is a conceptual rural urban model for decentralized development that attempts, through its evolution in several texts and the models and drawings accompanying them, to provide a humane alternative to centralized commercial urbanism.<sup>234</sup> In that regard it is as interesting for what is omitted as for what is shown in the models and drawings - that is, the context from which the work emerged, beyond the models and outside of the drawings. This consideration is an exercise that requires 'zooming out', and taking into account the context in which the work itself was done.

References to this may be found in Wright's numerous texts, in which he develops what might be called his *radical humanism*, and in the legacy of ideas, opportunities and personalities the project engages in its socio-political context over time - relating the social logic, physical proportion and spatial anatomy of the strategy itself to its underlying environmental framework. In Wright's time, as in our own, the rapid urban transformation of formerly rural sites of strategic interest contributed to a myopic enthusiasm for urbanization. This was evidenced then in the widespread adoption of centralized socio-economic models such as Von Thünen's *The Isolated State* (1826), as it is now in popular academic and professional ideals of the self-sufficient city.

[fig.4\_‘The Isolated State’ (1826)]

Johann Heinrich von Thunen developed a model that is considered to be the first serious treatment of spatial economics and economic geography - connecting it with the theory of rent. The black dot represents a city; 1 (white) dairy and market gardening; 2 (green) forest for fuel; 3 (yellow) grains and field crops; 4 (red) ranching; the area beyond this represents wilderness where agriculture is not profitable.



Yet the city has never existed in isolation, and neglecting to acknowledge the city 'in context' has contributed to both ecological and social degradation from generation to generation. We have seen that this degradation actually leads to fewer lifestyle options – and to cities of utter sameness. Can the technologically advanced city be reconciled with existing environmental and social contexts, or must it impose another order? The following pages provide an overview of how Wright framed this question verbally, socially and spatially - and how he responded to it with *The Living City*. The text concludes with a critical consideration of this response given the cultural context in which it was produced, and an evaluation of the contribution that response might still make to contemporary research.

<sup>234</sup> Frank Lloyd Wright, *The Living City* (New York: Horizon Press, 1958).

### *iii. Origins and Elaboration*

The main themes developed in *The Living City* can all be found in Wright's early writings of the 1890's, and are directly related to his personal experience. Raised in a socially progressive Wisconsin agricultural community of Welsh immigrants, his immediate family members were leaders in the Unitarian church, and the important philosopher and educator John Dewey was an associate of his teacher-aunts - for whom Wright designed the renowned Hillside Home School in 1896, and additional buildings subsequently (these ultimately becoming the home of the Taliesin Fellowship in 1932 - initially conceived of as the *Hillside School for the Allied Arts* in 1928). Coming of age he experienced the very modern phenomenon of leaving the country for the city, living and working in industrial-era Chicago, where both the vitality and the ills of industrial-era cities were abundantly manifest: from the coexistence of extreme wealth and poverty, to progressive social initiatives and the exploitation of ever-abundant immigrant labor, to the creation of urban parks and the destruction of entire ecological systems, including engineer's reversing the flow of the Chicago River in 1892-1900.<sup>235</sup> The key themes in his early texts were also the subject of his personal and professional efforts – namely the intergenerational continuity of knowledge in a site-specific context, the creative use of technology for humane purposes, and a notion of rural and urban settlements together as the living 'body of civilization'.

These themes coalesced in his essay *The Art and Craft of the Machine*,<sup>236</sup> which was prepared and delivered for a meeting of the Chicago Society of Arts and Crafts at Jane Addams's Hull House, an institution with a broad reputation for its advocacy of social reform.<sup>237</sup> From its founding in 1889, until its sudden, politically-motivated closure in 2012 Hull House was considered a standard-bearer for innovative social, educational and artistic programs for immigrant and working-class families.<sup>238</sup> The Chicago Society of Arts and Crafts was itself founded in response to the rapid industrialization of production methods, and, as stated in its *charter*, sought collective means by which to stem the proliferation of cheap goods and to retain the arts and crafts as viable livelihoods. As distinct from the tendency to regard the industrialization of production as exclusively negative in social terms, Wright asserted that the machine was but another tool, arguing that in the hands of the artist and craftsman it could also serve to bring about a more humane society. Indeed, the architect accepted the machine as an inevitable means of production, but sought to control its consequences at the scale of architecture and the city:

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<sup>235</sup> An initiative that subsequently led to catastrophic flooding, and was returned to natural cycles in 2013, see Chuck Sudo, "Chicago River Flow Re-Reversed To Alleviate Flooding," Chicagoist, accessed July 6, 2017, [http://chicagoist.com/2013/04/18/chicago\\_river\\_flow\\_re-reversed\\_to\\_a.php](http://chicagoist.com/2013/04/18/chicago_river_flow_re-reversed_to_a.php).

<sup>236</sup> Wright, "The Art and Craft of the Machine."

<sup>237</sup> See Johnson, "Hull House," in *The Encyclopedia of Chicago*, ed. James R. Grossman, Ann Durkin Keating, and Janice L. Reiff (Chicago: University of Chicago Press, 2004).

<sup>238</sup> Tammy Webber, "Hull House Closes Doors after More than 120 Years," accessed July 6, 2017, <https://www.yahoo.com/news/hull-house-closes-doors-more-120-years-183258990.html>.

*As we work along our various ways, there takes shape within us, in some sort, an ideal – something we are to become, some work to be done. This, I think, is denied to very few, and we begin really to live only when the thrill of this ideality moves us in what we will to accomplish. In the years which have been devoted in my own life to working out in stubborn materials a feeling for the beautiful, in the vortex of distorted complex conditions, a hope has grown stronger with the experience of each year, amounting now to a gradually deepening conviction that in the Machine lies the only future of art and craft – as I believe, a glorious future; that the Machine is, in fact, the metamorphosis of ancient art and craft; that we are at last face to face with the machine - the modern Sphinx - whose riddle the artist must solve if he would that art live, for his nature holds the key.*<sup>239</sup>

As an extension of human will, he describes the city in terms of an explicitly biological analogy – the modern city as the offspring of the ‘machine-Sphinx’, consistent with the image of the mechanized city as ‘leviathan’ he portrays in the essay’s dramatic conclusion:

*...be gently lifted at nightfall to the top of a great downtown office building, and you may see how in the image of material man, at once his glory and menace, is this thing we call a city. There beneath, grown up in a night, is the monster leviathan, stretching acre upon acre into the far distance. High overhead hangs the stagnant pall of its fetid breath, reddened with the light from its myriad eyes endlessly everywhere blinking. Ten thousand acres of cellular tissue, layer upon layer, the city's flesh, outspreads enmeshed by intricate network of veins and arteries, radiating into the gloom, and there with muffled, persistent roar, pulses and circulates as the blood in your veins, the ceaseless beat of the activity to whose necessities it all conforms...If the pulse of activity in this great city, to which the tremor of the mammoth skeleton beneath our feet is but an awe-inspiring response, is thrilling, what of this prolific, silent obedience? And the texture of the tissue of this great thing, this Forerunner of Democracy, the Machine, has been deposited particle by particle, in blind obedience to organic law, the law to which the great solar universe is but an obedient machine.*

*Thus is the thing into which the forces of Art are to breathe the thrill of ideality - a soul.*<sup>240</sup>

This analogy of the body of civilization as an obedient, pulsing machine frames the answer he gives as to the nature of the architect’s ultimate objective – to bring, through art, ‘a soul’ to the city-machine, the *leviathan*, rendering it empathetic and beneficial to humanity as a habitable artifact. I believe that it was Thomas Hobbes’ classic 1651 text, *LEVIATHAN or The Matter, Form, and Power of a Commonwealth Ecclesiastical and Civil*, which influenced Wright’s choice of that particular term in characterizing the city.<sup>241</sup>

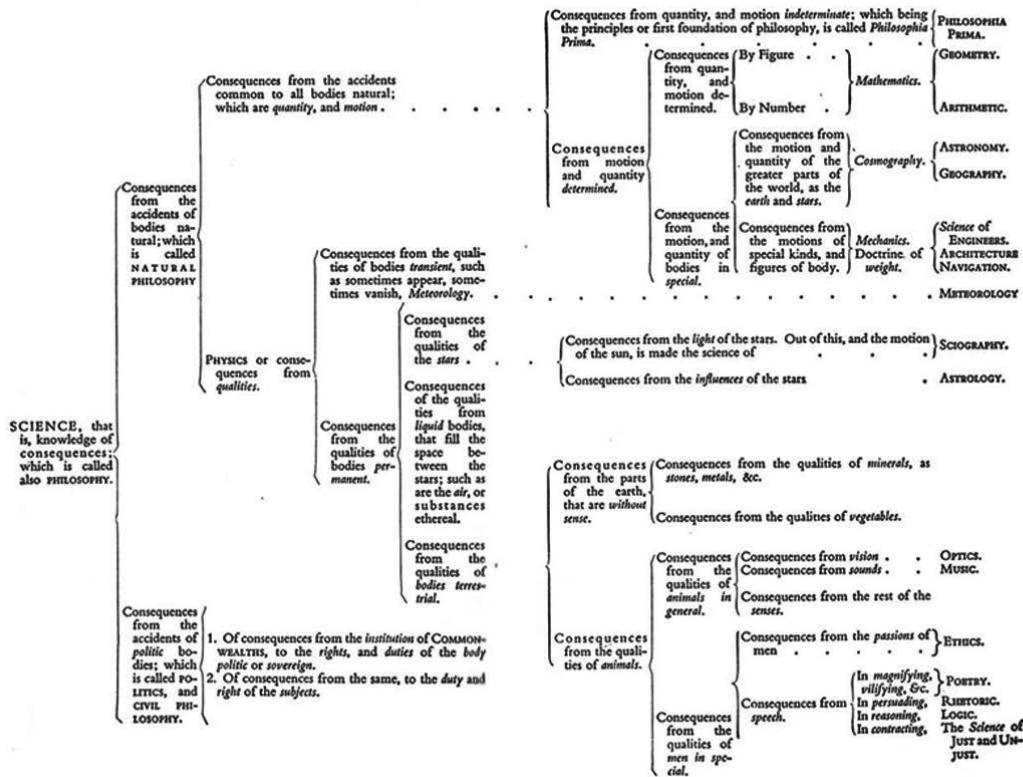
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<sup>239</sup> Wright, “The Art and Craft of the Machine,”; reprinted in Bruce Brooks Pfeiffer, *Frank Lloyd Wright Collected Writings Vol.1: 1894-1930* (New York : Scottsdale, AZ: Rizzoli, 1992), 58.

<sup>240</sup> Wright, *Frank Lloyd Wright*, 1992, 1:68–69.

<sup>241</sup> Thomas Hobbes, *Leviathan* (New York: Oxford University Press, 2008).

Indeed, in *LEVIATHAN* Hobbes lays the foundation for ‘the science of natural justice’, which he regarded as the culmination of ‘the science of consequences’ – he illustrates this with a diagram of the fields of knowledge as then interpreted. The holistic, inclusive ambition of Hobbes to grapple with the issues of society *en masse* and *in situ* anticipates the scope Wright attempts to bring forward in his essay.



[fig.5\_ **Disciplinary Anatomy (1651)**] Hobbes’s indexical attitude resulted in this ‘family tree’ of the disciplines, which he describes thusly: ‘The registers of science are such books as contain the demonstrations of consequences one affirmation to another, and are commonly called books of philosophy; whereof the sorts are many, according to the diversity of the matter, and may be divided in such a manner as I have divided them in the following table.’ *Image: public domain*

When *The Art and Craft of the Machine* was delivered in Chicago the industrial age was in full force – although benefitting some, capitalized industry throughout the world was creating a massive and often genuinely oppressed labor class, even while technologies to increase automated productivity were displacing artists and workers, and ever more powerfully impacting both agricultural and urban regions. In his text, Wright acknowledges the difficulties arising from the machine’s implementation, asserting that they are not inherent in the machine, but are the result of greed and the misuse of a powerful tool – the machine is ‘the creature and not the creator’ of political iniquity. His open attitude toward the machine was not then common among artists and intellectuals involved in the Arts and Crafts movement, many of whom actively protested any collaboration with industry.

By his own account, this optimism was motivated by his having read as a child Victor Hugo's *Notre-Dame de Paris* (1831) – one chapter of which, usually excised when published in English, is an essay titled *Ceci Tuera Cela*, or ‘This Will Kill That’.<sup>242</sup> The essay describes, through a concise history of architecture, how in the Gothic cathedral one could see the culmination of architecture as the integration of all conceivable arts: music, ritual, liturgy, textiles, carpentry, masonry, sculpture and painting. Hugo goes on to describe how, with the invention of the printing press, ‘the book will kill the edifice’ – because of the press, continuity of human thought no longer required strategies of material permanence, of stone and wood, but alternatively the proliferation of inexpensive multiplicities sufficed. Hugo poetically describes the emancipated pages of the printing press blowing in the wind, ‘like birds leaving the cathedral at dawn’. Wright refers to this chapter in his early essay as describing for him ‘the grandest sad thing in the world’:

*Architecture is dethroned.*

*Gutenberg's letters of lead are about to supersede Orpheus' letters of stone.*

*The book is about to kill the edifice. The invention of printing was the greatest event in history. It was the first great machine, after the great city. It is human thought stripping off one form and donning another. Printed, thought is more imperishable than ever - it is volatile, indestructible.*

*As architecture it was solid; it is now alive; it passes from duration in point of time to immortality.*<sup>243</sup>

One can see the further development of this interpretation of the historic trajectory of technology in *The Disappearing City*, the next major effort he made to address these themes. He began writing the book 1928, and it was published in 1932. The book's independent publisher was William Farquhar Payson, formerly a journalist for the New York Times and managing editor at Vogue Magazine in the late 1890's, who in 1928 had supervised the publication of Le Corbusier's *Toward a New Architecture*, and in 1929 had published a second book by Le Corbusier, *The City of To-morrow and its Planning*, and



[fig.6\_Gutenberg's press, circa 1439]

Image: public domain

<sup>242</sup> Victor Hugo, “Ceci Tuera Cela,” in *Notre Dame de Paris*, vol. 5 chap.2, The Harvard Classics Shelf of Fiction (Cambridge, Massachusetts: Harvard University Press, 1917).

<sup>243</sup> Wright, Frank Lloyd Wright, 1992, 1:60.

Henry Russell Hitchcock's *Modern Architecture*.<sup>244</sup> Certainly *The Disappearing City* can be seen as in dialogue with the architectural community at large. Prior to its publication, Wright had further developed his ideas about the book through a series of public lectures with the theme of 'The City' at Princeton University in 1930, in which he questioned the nature of the city, speculated about its gradual dissolution – again 'human thought stripping off one form and donning another' – and identified numerous factors of decentralization that have since been widely recognized, including the automobile and various forms of communication technology. *The Disappearing City* issues an unrelenting indictment of the commercialized industrial city, describing it as 'some tumor grown malignant...a menace to the future of humanity'. The first of only four illustrations in the book is an aerial view of New York City eerily shrouded in smog and bearing the enigmatic caption, 'Find the citizen'<sup>245</sup> – an illustration retained in subsequent publications, including his final book *The Living City*, in which it is also the first image.<sup>246</sup>



[fig.7\_Wright, *The Disappearing City* (1932)] The 1932 book features an aerial view of New York City from the early 1900's that bears a striking similarity to a view of Dubai used on the cover of AD magazine from over a century later – illustrating what little progress has been made in terms of conceptualizing the city.

*Images: Library of the Swiss Federal Institute of Technology-Lausanne*

In place of extensive illustrations are vivid descriptions of what the decentralized city, in the hands of the artist-architect enabled by the machine, might become:

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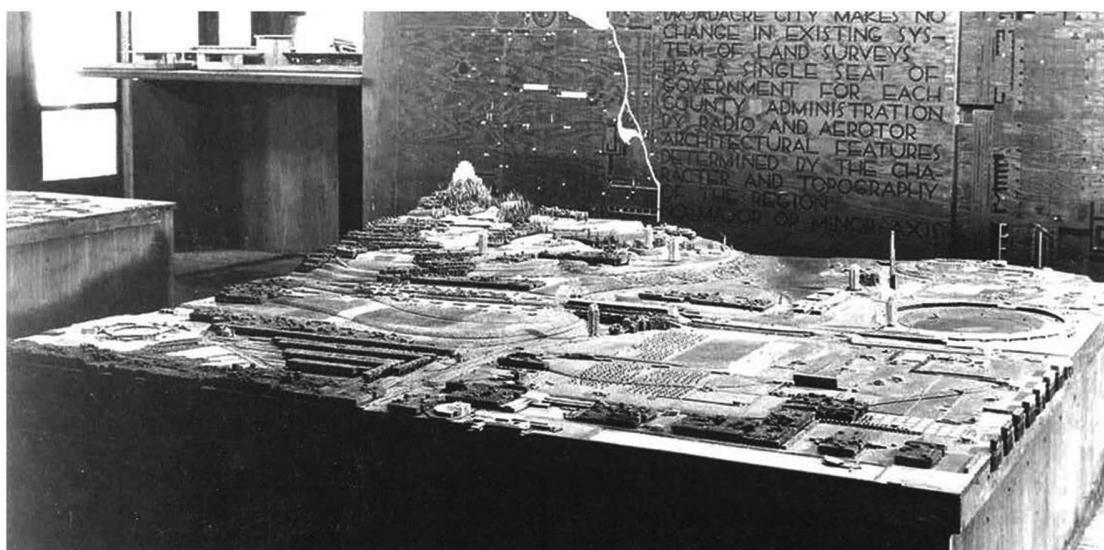
<sup>244</sup> See William Steiner, "Wright Studies: The Disappearing City," accessed July 6, 2017, <http://www.steinerag.com/flw/Books/a0328b.htm>.

<sup>245</sup> Frank Lloyd Wright, *The Disappearing City* (New York: William Farquhar Payson, 1932), 18.

<sup>246</sup> Wright, *The Living City*, 1958, 32.

*Imagine spacious landscaped highways...giant roads, themselves great architecture. Pass public service stations, no longer eyesores, expanded to include all kinds of service and comfort. They unite and separate — separate and unite the series of diversified units, the farm units, the factory units, the roadside markets, the garden schools, the dwelling places (each on its acre of individually adorned and cultivated ground), the places for pleasure and leisure...This integral whole composes the great city that I see embracing all of this country—the Broadacre City of tomorrow.<sup>247</sup>*

This description of the future city, first coining here the term *Broadacre City*, was to take form in 1934-35 in a series of drawings, models and publications related to an exhibition of that name which toured from Rockefeller Center in New York, to Washington DC, to Pittsburgh, and to several cities in rural Michigan and Wisconsin before embarking on an extensive international tour.



[fig.8\_Broadacre City model (1934)] Quarter section, scale 1 inch = 75 feet. FLLW 3402.048

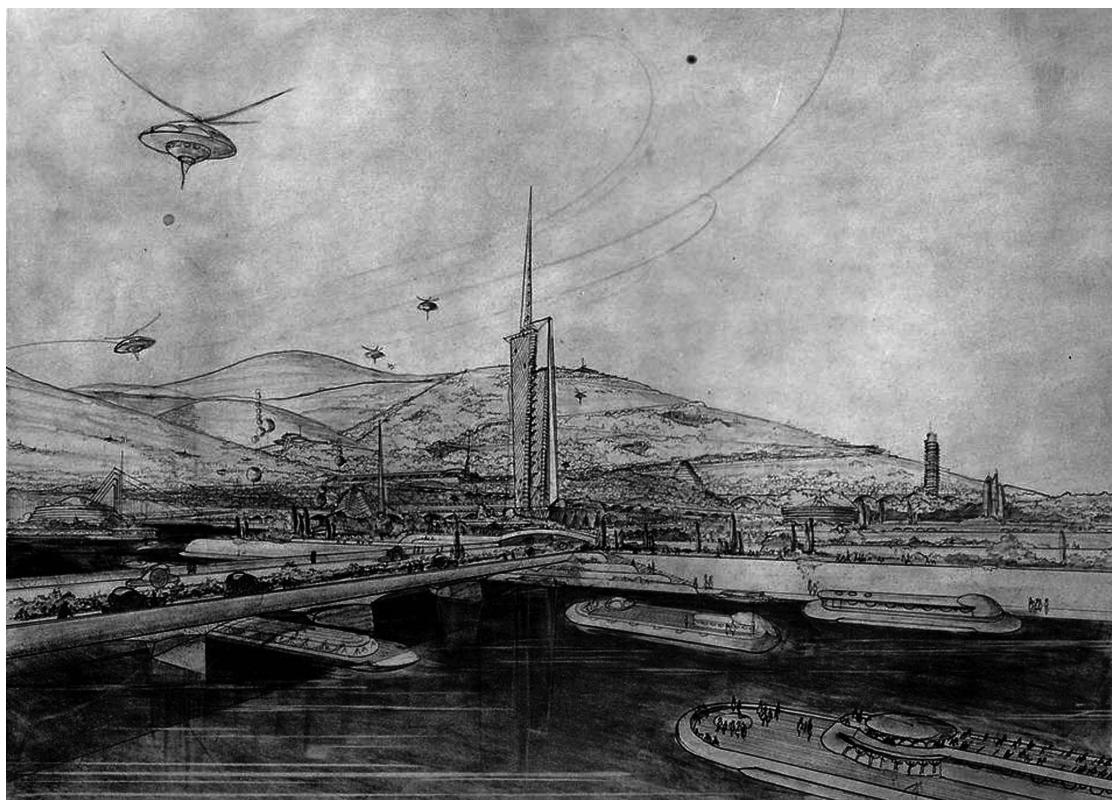
In 1945 *The Disappearing City* was fully revised, expanded, and illustrated with this new material, and it was published with the title *When Democracy Builds*.<sup>248</sup> The architect's final and most comprehensive treatise on the subject, *The Living City*<sup>249</sup>, supplements the earlier texts with richly detailed perspective drawings and reflections about the impact of technology on an overarching social narrative.<sup>250</sup>

<sup>247</sup> Wright, *The Disappearing City*; reprinted in Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.3: 1931-1939*, ed. Bruce Brooks Pfeiffer, vol. 3 (Rizzoli, 1992), 91–92.

<sup>248</sup> Frank Lloyd Wright, *When Democracy Builds* (Chicago: Chicago University Press, 1945).

<sup>249</sup> Wright, *The Living City*, 1958.

<sup>250</sup> Ibid., 42 for example: “That government is best which governs least” said a Thomas Jefferson crossing an Alexander Hamilton. George Washington, Thomas Paine, Abraham Lincoln, William Lloyd Garrison, John Brown, Emerson, Whitman, Thoreau, Henry George, Louis Sullivan – such as these and their kind were her sons. In them the original ideal was held clear.”



[fig.9\_The Living City (1958)] Aerial view. FLLW 5825.006

Under the heading 'Illusion', Wright again correlates his key themes:

*Centralization now proves to be something that, used to wind space up tighter and tighter, smaller and higher, is like some centripetal device revolving at increasing speed until – terrible, beyond control – it turns centrifugal, ending all by dispersal or explosion. Meantime, what possible control? Government? No – or only to a very limited extent. In democracy, more and more limited to expedients: politics. The only possible control, then, is profoundly educational. In democracy, is education – when on speaking terms with culture – not the true answer to such exaggerations of artificiality as machine power in production, or as crowding? On behalf of humane freedom it is the growth of this human intelligence ultimately applied to the city that we must interfere by such pressures as it can exert there where pressure does most good. Salvation from the false economies of centralization lies in a wider grasp of the limitations and danger of these powers – machine powers all – multiplied to excess. What hope is there for our future in this machine age, if indeed the machine age is to have any future, unless decentralization and appropriate reintegration are soon encouraged – given right-of-way in actual practice?<sup>251</sup>*

He goes on to criticize the 'three major artificialities...grafted by law upon all modern production': rent for land (leading to speculative development), rent for money (leading to unscrupulous banking practices), and rent for inventions (leading to patents and proprietary knowledge). "A new speculative commodity has therefore appeared – money, unnatural as commodity, now becoming monstrosity.

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<sup>251</sup> Wright, *The Living City*, 1958, 33–34.

The modern city is its stronghold and chief defender; and insurance is one of its commodities.<sup>252</sup>...And when urban men of commerce themselves succeed, they become more than ever vicarious. Soon these very successful men sink into the sham luxury their city life so continually produces. But they create nothing! Spiritually impotent, a fixation has them where impotence wants them: fixation in a cliché.”<sup>253</sup>

Thus it is the cliché image of the city-as-progress, and its marketing propagandists, at which his treatise takes aim: “So this modern monster, degeneration of the Renaissance city, becomes the form universal of anxiety, all stated in various forms of rent. The citizen’s very life is tenant, himself rented, in a rented world. Production is now trying to control consumption...this it is that turns the nation into a vast factory, greedy for foreign markets, with the spectre of war as inevitable clearing house.”<sup>254</sup> In contrast to this, he asserts:

*Our natural resource now is in new possibilities of access to good uses for good ground: an agronomy intelligently administered...The living, consuming man-unit of our society will ultimately decide this momentous issue. Consumption must control production. This matter will only be decided by consumption in proper control of an organic basis for distribution, man to man, nation to nation...The road to a good life is still open. But today this road must lead on through public obstruction...hindrances legally erected, legalities exploiting his good faith – a general depravity in a drift toward quantity at expense to quality, until we find all heading in toward war or revolution: this time the revolution industrial – yes. Agrarian, no. About time now our agronomy asserted itself in his behalf.*<sup>255</sup>

In his closing notes, he reflects on the various iterations the work has taken, “Does *The Art and Craft of the Machine*, first read at Hull House...seem to suffer contradiction here? No. I then dreaded the machine unless well in the hand of the creative artist. Saying so then, I say so now. I knew then that this power we call the Machine was, otherwise, socially malevolent...but today the Machine is running away...it has been far too exploited by industrialism and science at expense to art and true religion.”<sup>256</sup> He goes on:

*Machine facilities have increased inordinate quantity production beyond consumption until total mechanization is trying to control distribution and the market. By total industrialism war, more war is always in sight, paid for in advance – all but the bloodshed. The machine is now become more the engine of destruction, and propaganda for increasing our national insecurity by wage-slavery is everywhere in the social fabric of the news. Higher human faculties, which the machine should serve to release in our Democracy, are officially and academically*

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<sup>252</sup> Wright, 34–35.

<sup>253</sup> Wright, 20.

<sup>254</sup> Wright, 21.

<sup>255</sup> Wright, 38–41.

<sup>256</sup> Wright, 246.

*emasculated, the humane interest fast disappearing. That is why the belated writing of this – seeming to me now – more timely, more important than ever book, original advocate of organic architecture; again to take the stand for the ‘consumer’ (the people) as against the ubiquitous, thoughtless producer for profit. The ‘consumer’ now must take what ‘production’ decides to make... This antithesis of the democratic process is a menace, a drift toward deadly conformity.”<sup>257</sup>*

In a statement that is in several ways the complementary opposite of his bold conclusion to *The Art and Craft of the Machine*, where he first posited the ambition for architects to give ‘a soul’ to the city, he concludes his final book with the modest acknowledgement of his own limitations, and reveals that his ultimate ambition for the work is it that it be a ‘caution’, a ‘warning’ and a ‘restraint’ against industrial urbanization:

*Finally, then, this long discourse, hard to write or read, is a sincere attempt to take apart and show, from inside, the radical simplicities of fate to which our own machine skills have now laid us wide open and try to show how radical eliminations are now essential to our spiritual health, and to the culture, if not the countenance, of democratic civilization itself... ‘The Living City’ then is nothing less than inspiration, or better, than restraint upon the effects of ill planning by the trustees whose responsibility it is – our young architects. I hope this book is at least an exhortation for them, a warning for the farmer, a caution and encouragement for the small manufacturer and for national colleges of architecture and agriculture, or such cultural nurseries as this nation has raised or razed or carelessly left standing. We cannot achieve our democratic destiny by mere industrialism, however great. We are by nature gifted as a vast agronomy. In the humane proportion of those two – industrialism and agronomy – we will produce the culture that belongs to Democracy organic.<sup>258</sup>*

The soul of the city, it seems, is already there – to be conserved, championed and cultivated in the relationship of the city with the rural culture that is its counterpart.

#### *iv. Critical Reception and Contemporary Interpretation*

Historically, academia and the professions of architecture and urban design have seriously considered little of Wright’s work in the extra-large scale – and when it has been considered it has generally been done rather cursorily. Architecture critic Witold Rybczynski summarized a view often held by the establishment when he described the *Broadacre City* project as the “embarrassing foible of an aging master.”<sup>259</sup> Herbert Muschamp, before he was the architecture critic of The New York Times,

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<sup>257</sup> Wright, 246.

<sup>258</sup> Wright, 248.

<sup>259</sup> Witold Rybczynski, *City Life* (New York: Scribner, 1996), 229.

concluded that the plan was "too real to be Utopian and too dreamlike to be of practical importance."<sup>260</sup> While author, historian and critic Lewis Mumford had early praise for it: "On the whole, Wright's philosophy of life and his mode of planning have never shown to better advantage,"<sup>261</sup> 30 years later he criticized the plan's "sprawling, open, individualistic structure" as being "almost antisocial in its dispersal and its random pattern."<sup>262</sup> This is a particularly interesting observation, given Mumford's close friendship with Wright, and his instrumental role in establishing the Regional Planning Association, an organization early and closely associated with the Chicago School of Sociology, that nevertheless has been an influential advocate of many *Living City* concepts and is very active today.<sup>263</sup>

Among several notable exceptions to this historic disregard are Robert Fishman's classic *Urban Utopias in the Twentieth Century*<sup>264</sup> and Charles Waldheim's essay *Towards a History of Agrarian Urbanism*<sup>265</sup> - which aside from Chris Reed's passing reference to *The Living City* and inclusion of an image of one of the 1958 aerial perspectives (mistakenly dated 1935) in his essay *Public Works Practice* in 2006's *Landscape Urbanism Reader*,<sup>266</sup> also edited by Waldheim, is the only reference to the project I've come across in the landscape urbanism discourse.

Wright maintained close friendships and professional collaborations with many of the individuals who figure prominently in the evolving contemporary discourse around landscape urbanism, ecological urbanism, and landscape infrastructure. Landscape architect Jens Jensen was a long-time collaborator, and Wright volunteered his services for Jensen's not-for-profit organization 'Friends of Our Native Landscape'; Wright corresponded with Olmsted, designed houses for his Riverside masterplan, and his son, Frank Lloyd Wright Jr., worked with the Olmsted Bros. practice directly after working with his father; landscape architect Lawrence Halprin attests that he entered the field after visiting Wright's Taliesin, etc. Clearly these exchanges exerted a reciprocal influence, and one can only imagine what deeper scholarship in this area will reveal. As UCLA Prof. Emeritus Lionel March has written,

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<sup>260</sup> Herbert Muschamp, *Hearts of the City* (Knopf Doubleday Publishing Group, 2013), 407.

<sup>261</sup> Lewis Mumford, "The Sky Line: Mr. Wright's City - Downtown Dignity," *The New Yorker*, 1935.

<sup>262</sup> Lewis Mumford, *The Highway and the City* (Harcourt Brace & World Incorporated, 1953), 223.

<sup>263</sup> "Regional Plan Association," Regional Plan Association, accessed July 6, 2017, <http://www.rpa.org>.

<sup>264</sup> Robert Fishman, *Urban Utopias in the Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier* (MIT Press, 1982).

<sup>265</sup> Charles Waldheim, *Notes Toward a History of Agrarian Urbanism*, Bracket 471 (Barcelona: Actar, 2010).

<sup>266</sup> Chris Reed, "Public Works Practice," in *The Landscape Urbanism Reader*, ed. Charles Waldheim (New York: Princeton Architectural Press, 2006), 281.

*“...contrary to the impression given by Wright’s critics, these views [represented by Wright in *The Living City*] were in fact shared by some of the most notable intellectuals and practicing politicians of his day. In particular I have in mind those social reformers, progressives and liberals...whom he ‘read and respected,’ or whom he knew as friends...such as William James and John Dewey, the American pragmatists; Henry George the popular economist; two of John Maynard Keynes’ ‘heretics’ – C.H. Douglas and Silvio Gesell – as well as the American institutional economists Thorstein Veblen and John Commons and the economic historian Charles Beard; in industry Henry Ford and Owen D. Young (of General Electric); in politics the ‘Wisconsin Idea’ progressives, the La Follette’s; and in social matters, Jane Addams, Edward Ross, and Richard Ely. All of them are at once idealistic and people of action...at least in the context of this particular liberal milieu...Wright’s views of society were unexceptionable and...in Broadacres, Wright was attempting as the best architect of his day to give potential architectural and urban form to what he believed to be the best thoughts and the best social actions of his American contemporaries...[they] did not consider democracy to be a form of government, so much as a way of living. This distinction between form on one hand and way or process on the other was a preoccupation of American pragmatic philosophy at the turn of the century...in contrast to the systematic philosophies of the established old world, the pragmatists conceived of an open-ended approach to cope with an entirely new an emergent situation...the dissemination of the pluralistic values of a polyglot people.”<sup>267</sup>*

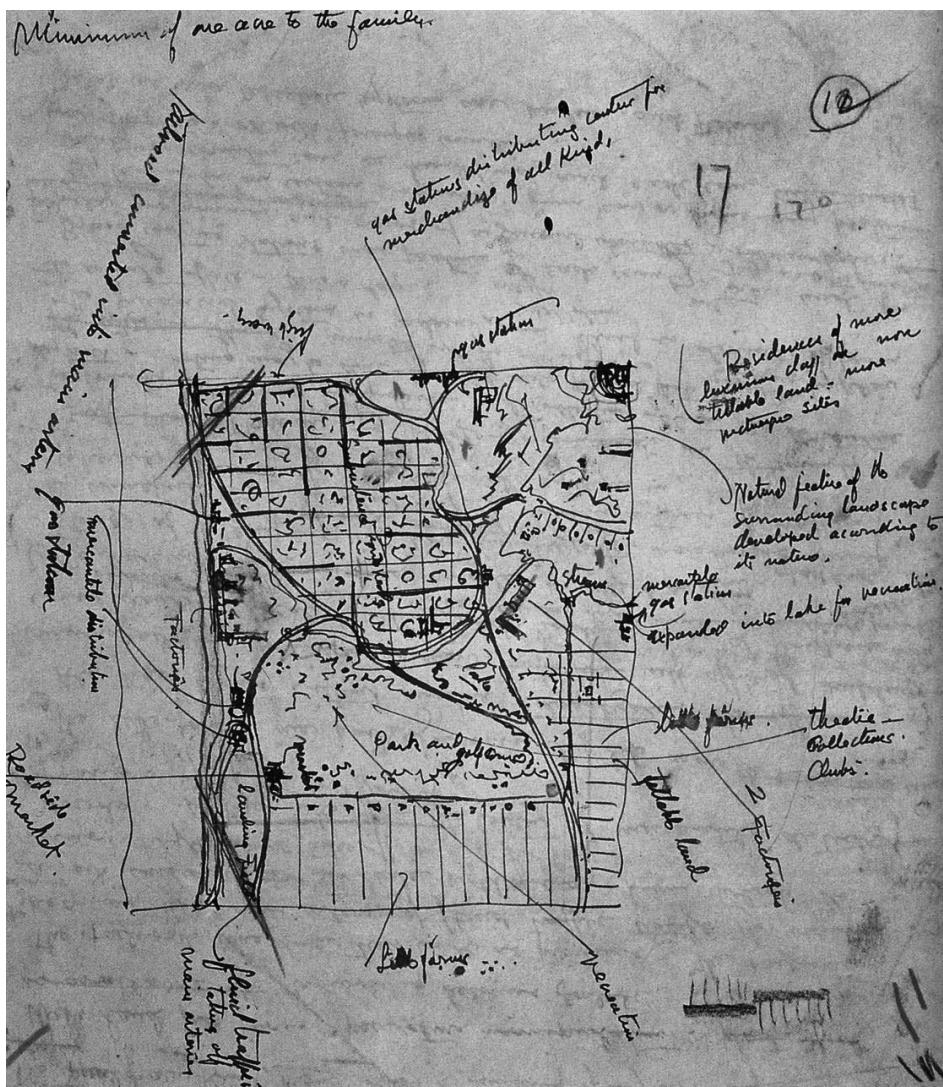
March goes on to establish many connections between *The Living City* and contemporary progressive initiatives in governance, economic and educational policy, substantiating his assertion that the design is indeed more procedurally - that is to say *dynamically* - conceived than it is formally, or *statically*, contrived.

This brings up what is certainly a valid critique of *The Living City*: although ostensibly built on the basis of a real quarter-section of land in the American Midwest, and Wright’s evocative hand sketches of curvilinear, landscape-responsive Broadacre variants exist in the archives, Wright never illustrated the scheme in the broader regional context. How was one district to relate to another? Was it to be deployed like a carpet, as a linear city, or as a polycentric network in which areas like this serve as nodes?<sup>268</sup>

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<sup>267</sup> Lionel March, “An Architect in Search of Democracy: Broadacre City (1970),” in *Writings on Wright: Selected Comment on Frank Lloyd Wright*, ed. H. Allen Brooks (MIT Press, 1983), 197.

<sup>268</sup> See for example: A.C. Nelson, “The Planning of Exurban America: Lessons from Frank Lloyd Wright’s Broadacre City,” *Journal of Architectural and Planning Research* 12, no. 4 (1995): 337–56. Note: illustration p.347, interestingly attempting to situate Broadacre into a Central City/Garden City/Edge City planning model.



[fig.10\_Frank Lloyd Wright, Broadacre City plan sketch, 1934]

Ink, color pencil on paper. 9 3/8 x 8 1/2 in. FLLW 3402.001

Nevertheless, it is interesting to note that March's extrapolated assessments of *The Living City*'s performative capabilities - made on the basis of what is represented in the project – provide evidence that rather than being a short-sighted model of automobile-induced sprawl, as had commonly been asserted, *The Living City* emerges as a meticulously scaled diagram of a compact transportation corridor network, whose rural urban dynamic could sustain the entire US population within a total footprint of 4% of the nation's area, leaving 96% to go back to wilderness. These figures include the agricultural and industrial land necessary to sustain the urban districts as well, creating what is effectively an integrated rural urban regional metabolism, as distinct from an isolated, self-sufficient city.<sup>269</sup> At 1:1

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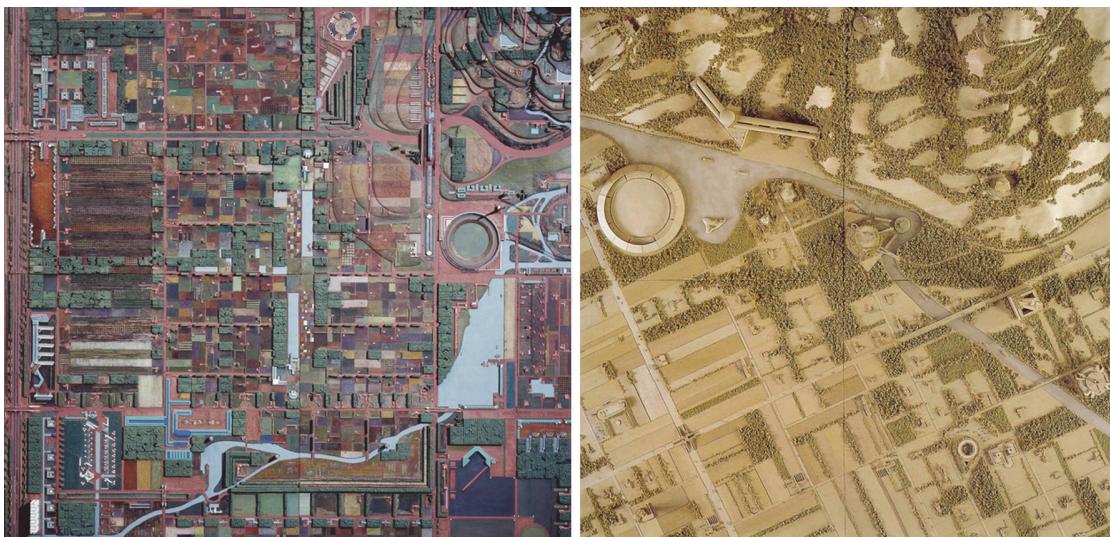
<sup>269</sup> John Sergeant, *Frank Lloyd Wright's Usonian Houses: The Case for Organic Architecture* (New York: Whitney Library of Design, 1976), 23.

scale this is, conveniently, about equivalent to the length of the US Interstate highway system when two miles on either side of the roadway.



[fig.11\_US Interstate Highway System] 4% of land mass, equivalent to Broadacre City's footprint when housing entire US population (2000 census). *Image: the author, after L. March.*

Of course, in practice *The Living City* strategy is unlikely to be either uniform or symmetrical, as environmental and socio-political settings will vary – and it was clearly conceived of as responsive to these contextual factors.



[fig.12\_Broadacre City Model (1934) and the Vitra Museum's The Living City (1997)]

This later exhibition reinterpreted the models in an aesthetically beautiful way, while neglecting the axial role of the transportation corridor ‘spine’ in relation to which the entire scheme is a gradation of density toward the edge – an interpretation unfortunately obscuring the essential formal logic of the scheme. *Images: (left) The Frank Lloyd Wright Foundation Archives (The Museum of Modern Art | Avery Architectural & Fine Arts Library, Columbia University, New York); (right) Vitra Museum, Basel.*

Although such a digression exceeds the scope of this research, it would be interesting to write the genealogy of ideas leading from Wright to Team 10 and the Texas Rangers: both these counter-cultural groups gained ascendancy in the mid-late 1950’s, as Wright (+ 1959) was fading – both emphasized, as

did Wright, the social and spatial as drivers of architecture and urbanization, and it seems clear to me that they are the closest thing yet to a ‘Wrightian’ legacy in architecture, polemic though that legacy may be.<sup>270</sup> Certainly reactions against this legacy are still present. For instance, Peter Eisenman (a student of Colin Rowe – who was a Texas Ranger and student of Wittkower), when asked about the contemporary relevance of his PhD thesis, in which he analyzed what he described as Wright’s ‘multi-axial’, ‘linear spatial’ compositions, responded:

*I hate Wright. I've always hated Wright. I only studied him to figure out why I hated him so much...I hate nature. If you love nature so much you should be a damned landscape architect.*<sup>271</sup>

Certainly there is ample precedent for this apparent compulsion to obscure context. In behavioral sciences it is generally associated with the repression of memory itself within the subconscious. Repressed memory is a psychological condition in which a memory has been blocked due to a high level of stress or trauma - although the individual often cannot recall the memory, it may still be affecting them. It is still a controversial topic in the discipline of psychology, and according to some psychologists repressed memories can be recovered through therapy, while others believe that repressed memories are in fact a cultural symptom because there is no documentation of their existence before the 1800's.<sup>272</sup> This is a fascinating question - but whether repressed memory is an individual or cultural phenomenon, it may well be that contemporary cities' persistent and general disassociation from context is attributable to traumatic events, both local and global.

Just so, in counterpoint to ascendant memory-negating theories of super-urbanism, the contemporary historian Sébastien Marot develops a direction of thought he describes as *sub-urbanism*, ‘a theoretical hypothesis, not necessarily exclusive of its opposite’ in which the conventional urban paradigm is inverted. Rather than program being the defining parameter of the project, as is the architectural tendency when amplified to the scale of the city, the existing site conditions – that is, both the landscape and social context – are taken as definitive of suitable programs.

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<sup>270</sup> Alexander Caragonne, *The Texas Rangers: Notes from the Architectural Underground* (Cambridge, Mass: The MIT Press, 1995), n. It is interesting to note that, according to John Hejduk, Rowe and Hejduk quit the Texas Rangers because of their incompatible views about Wright: they'd taken tours visiting Wright's houses, Rowe starting out as a Wright advocate, and Hejduk an advocate of Le Corbusier – by the end of the tour they'd swapped positions, passionately. Of course, they each went on to their own academic careers, notably influencing their students – many of whom are now successful architects, with works strongly reflecting the attitudes of their mentors. For example, Elizabeth Diller was a student of Hejduk, and is very open to these Wrightian influences; Eisenman was a student of Rowe, and clearly was not so inclined to openness – at least in later years. Bernard Hoesli, another Texas Ranger, seems to have been the peacemaker, usefully integrating both Wright and Le Corbusier in his curricula.

<sup>271</sup> This exchange between the author and Peter Eisenman was documented at the Berlage Institute in Rotterdam, and can be seen here “Genius Loci and the Zeitgeist: Two Ideologies” [http://www.theberlage.nl/events/details/2010\\_03\\_23\\_genius\\_loci\\_and\\_the\\_zeitgeist\\_two\\_ideologies](http://www.theberlage.nl/events/details/2010_03_23_genius_loci_and_the_zeitgeist_two_ideologies). Accessed July 6, 2017.

<sup>272</sup> Elizabeth Loftus, “The Reality of Repressed Memories,” *American Psychologist* 48, no. 5 (1993): 518–37; Ashley Pettus, “Repressed Memory,” *Harvard Magazine*, January 2008.



[fig.13\_‘Sub-Urbanism and the Art of Memory’ (2003)] Sébastien Marot’s treatise is explicitly written in counterpoint to Koolhaas’ ‘Delirious New York’. *Image: Architectural Association, London.*

He characterizes such an approach with four specific attitudes: an ‘active regard’ for the memory of the site; an ‘in depth’ rather than ‘planar’ view of open and public space; seeing site and design as ‘fields of relations’ rather than as objects; and seeing these as ‘processes’ rather than as products. Marot explains:

*I regard these four principles not as inflexible rules of ethics but rather as the precepts (themselves essentially relative) of a preliminary and therefore imperfect code of conduct that, to borrow from Descartes, ‘can be followed by way of provision, so long as one doesn’t know any better.’<sup>273</sup>*

Such an approach would indeed be consistent with the principles outlined in *The Living City*, and might still provide effective therapy for traumatized, disassociated regions and their inhabitants.

#### *v. To Wake Leviathan*

The relationship between individual memory, imagination and cultural memory played an important role in Hobbes’ *Leviathan*. The source of Hobbes’ use of the term was evidently Biblical scripture, in which perhaps the most famous reference to it is in the book of Job, where Leviathan is mentioned in the context of its obscuring not only memory, and light, but even time itself. To set the stage: Job has been a blameless and successful man, living well with his family and his deserved wealth, until one day he loses everything, even his health. His friends come to visit him, ‘...and they sat with him seven days and seven nights, and no one spoke a word to him, for they saw that his suffering was very great’:

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<sup>273</sup> Marot, *Sub-Urbanism and the Art of Memory*, 5.

*After this Job opened his mouth and cursed the day of his birth. And Job said: Let the day perish wherein I was born, and the night which said, A man-child is conceived. Let that day be darkness! May God above not seek it, nor light shine upon it. Let gloom and deep darkness claim it. Let clouds dwell upon it; let the blackness of the day terrify it. That night – let thick darkness seize it! Let it not rejoice among the days of the year, let it not come into the number of months. Yea, let that night be barren; let no joyful cry be heard in it. Let those curse it who curse the day, who are skilled to wake Leviathan.*<sup>274</sup>

While Job itself is likely not a mythological book, this reference to leviathan is no doubt an allusion to mythology. Many scholars identify the Leviathan of this verse with a mythological creature described in Ugaritic myths, according to which a marine monster named Lotan was capable of altering the entire world order by eclipsing the sun or moon with its body.<sup>275</sup> So Job, angry and frustrated, employs the most forceful, vividly poetic language available to him in order to call for the obliteration of that day. Clearly the evocative use made of the term *leviathan* by Hobbes and Wright is consistent with this earlier use. When asked by his apprentices in later years what they should read of the architectural classics, Wright consistently referred to Victor Hugo's aforementioned essay, which he cited so extensively in *The Art and Craft of the Machine*, and to the work of Eugène-Emmanuel Viollet-le-Duc, who in 1868 (incidentally the year following Wright's birth) identified the machine as promising to fulfill the Gothic ideal in its ability to 'express the qualities of materials and to transform static relationships into dynamic ones based on balances between opposing forces.'<sup>276</sup>

Throughout *The Living City* Wright uses the term *static* to connote outdated notions, and *dynamic* to describe progress – he describes his interest in 'looking into instead of at', advocating the analysis of dynamics over the comparison of appearances, with practical implications both for structurally optimizing oscillations between tension and compression in the form of a building, as for situating the city within the material and spatial dynamics of environmental, social, and economic forces - forces that are now commonly regarded, in the parlance of contemporary macro-economic analysis, as PESTEL: Politics, Economics, Sociology, Technology, Environment and Law. When correlated with current computational technology at the scale of the city, these dynamics are seen as ever-subtler geometric interactions, meta-data describing energetic affinities, attracting, repelling, and generating form. The ever-growing sophistication of technology increasingly facilitates the subtler optimization of the form of the city and its architecture, potentially enabling the creation of buildings, environments and social infrastructures that are profoundly humane.

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<sup>274</sup> "Job 3:1-8," accessed July 6, 2017, <http://www.kingjamesbibleonline.org/Job-Chapter-3/>. Also see Hailey, 1994, 49.

<sup>275</sup> J. Barton Payne, *Encyclopedia of Biblical Prophecy*, 2nd ed. (Surrey: Baker, 1980), 1:472. Also see "Ugaritic Language," *Wikipedia*, May 23, 2017, <https://en.wikipedia.org/>.

<sup>276</sup> Eugène-Emmanuel Viollet-le-Duc, *Rationale Dictionary of French Architecture: Selections from the Dictionnaire Raisonné*, trans. N. Clifford (Nathan Clifford) Ricker (Paris: B. Bance, 1858).

Just as Wright, through his empathetic interest, sought to attribute the qualities of a living thing to the city, there is no question that we, as humans, generally seek to imbue our own creations with life. Were there any question of this, it is a principle convincingly illustrated by the architectural historian Spyros Papapetros in *On the Animation of the Inorganic: Art, Architecture and the Extension of Life*, where he demonstrates that throughout human history people have regarded inanimate objects as possessing intelligence, language, and even souls.<sup>277</sup> This idea is particularly resonant in our secular society, where the emergence of artificial intelligence seems increasingly foregone conclusion, aided as it were by our own daily interactions with computers and IT systems. Citing the work of art historians such as Aby Warburg, Wilhelm Worringer, and Alois Riegel, Papapetros traces the development of such ‘animation’ from the *fin de siècle* through the 20<sup>th</sup> century, arguing that modernism repressed empathy – the ability to identify with objects of the external world – but that it returned, ‘projected into inorganic objects’ that ‘vibrated with energy, life, and desire of their own and had profound effects on people.’ Among those artifacts he lists silicon-based machines, automobiles, and ‘crystalline skyscrapers’ – to which, in light of Wright’s argument, we can add cities themselves.

Clearly the scope of Wright’s ambition encompassed not only the city, nor merely the reunification of the arts and crafts that were ensemble in the Gothic era – he sought the radical humanization of the entire ecology of the forces of our modern era, whose interactions materially and energetically transform the shape of society. At the same time, his regard for cultures of the past prompted him to regard as reactionary the dismissal either of tradition or of the machine. This progressive interest came with a sense of responsibility to the past – ‘that the new art to come might not have dropped too many stitches nor have unraveled what would still be useful to her.’<sup>278</sup> After all, we still have the building and the book, rural and urban – and the ideal city, however imperfect, ought to be inclusive of the humanity epitomized by each.

Wright’s life and work spanned from the Victorian age to the space age, and *The Living City* is arguably his most ambitious attempt to ‘bridge the gap’. In arguing for contextual, open-ended planning methods while emphasizing Emersonian self-reliance, it provides a suitable polemic in polar counterpoint to contemporary notions of cities as self-sufficient. As a precedent stimulating an awareness of the fundamental need of a ‘humane proportion’ of industry and agronomy, it is of urgent relevance today. Certainly in many ways we are still in that era: although modern technology enables incredibly powerful machines, new scientific insights regularly expand our horizons and every day proud new cities sprawl leviathan-like across the face of the earth, it is up to us to require that they be humane. Perhaps humanity is ever to go on learning the lesson of the printing press: iterative and exploratory are often preferable to permanent and perfect, as they are better suited to our intergenerational human condition. *The Living City* – a project resulting from the architect’s own initiative,

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<sup>277</sup> Spyros Papapetros, *On the Animation of the Inorganic: Art, Architecture, and the Extension of Life* (Chicago: University of Chicago Press, 2012).

<sup>278</sup> Wright, *Frank Lloyd Wright*, 1992, 1:59.

not a client's – gives form to decentralized power in direct affinity with woman's suffrage, civil rights movements, anti-trust legislation and open source networks.

If the mythological deep-sea Leviathan can be equated with submerged, repressed memories, and fear of it equated with individual or cultural anxieties related to these, then 'waking Leviathan' could be just the therapy needed for us to realize that the shadow threatening to blot out memory, light, and time, is our own.



[fig.14\_Gustave Doré, *Destruction of Leviathan* (1865)] Image: public domain

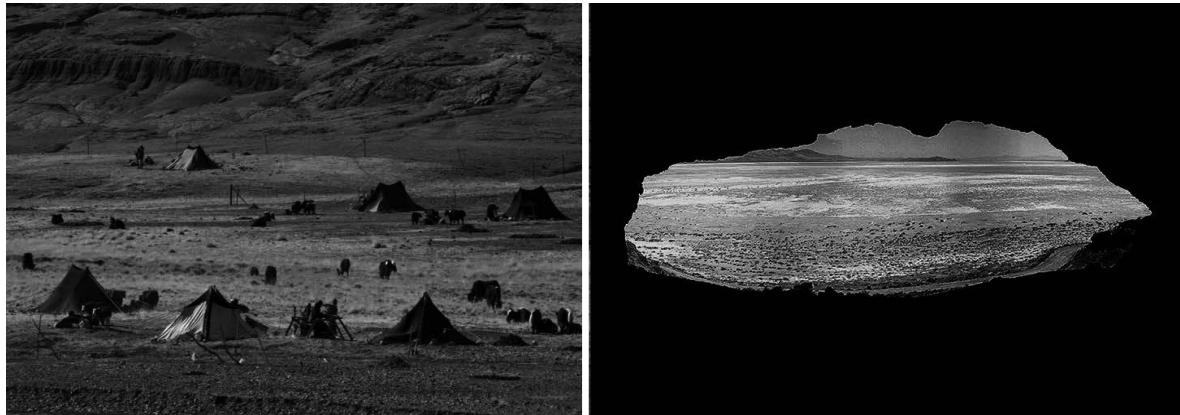
In light of this conclusion, Wright's enigmatic closing sentence in 'The Living City' sounds a note of caution – and of encouragement – that is perhaps more relevant than ever: "The present is the ever moving shadow that divides yesterday from tomorrow. In that lies hope."<sup>279</sup> This rather cryptic reference to 'the ever moving shadow', in which there more than an echo of Plato's Allegory of the Cave, can be illuminated by reflecting on Wright's own polemic narrative analogy: The Allegory of the Nomad and the Cave Dweller.

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<sup>279</sup> Wright, *The Living City*, 1958, 248.

#### *vi. The Nomad and The Cave Dweller*

Among the narratives Wright maintained as he developed his rural polemic from *The Disappearing City* to *The Living City* was that of the nomad and the cave dweller. Recalling Cicero's description of *otium* and *negotium* (equivalents of rural and urban, respectively) as two essentially complementary – even necessary – phases of existence, it is interesting to highlight the contrast between Cicero's synthetic attitude and the polemic deliberately cultivated by Wright between American *ruralism* and European *urbanisme*. Wright equated *ruralism* with nomadism, and *urbanism* with cave dwellings.



[fig.15\_nomad and cave dweller] Contemporary Tibetan nomads near Darchen (previously known as Lhara) in Purang County, and a view from one of the caves historically occupied in that region. Courtesy M.Christensen

In his first book dedicated to the subject, *The Disappearing City* (1932), Wright argues that despite the technological advantages of modernity, 'capitalized centralization is no longer a system for the citizen nor one working for him:'

*Having done its work for humanity, centralization is centripetal force beyond control, exaggerated by various vicarious powers. And it is exaggerating more and more in its victim his animal fear of being turned out of the hole into which he has been accustomed to crawl only to crawl out again tomorrow morning. Natural horizontality is gone and the citizen condemns himself to an unnatural, sterile verticality - upended by his own excess.*

*Notwithstanding, sporadic housing, slumming, and profit sharing to build him permanently into bondage as he stands, but for this involuntary war of mechanical factors he is all but helpless now, cursed by the primitive cave dwelling instinct: the shadow of the wall of the ancestral tribe.<sup>280</sup>*

Following this opening argument - introducing 'the curse of the primitive cave dwelling instinct' as the equivalent of *urbanism*'s false promise of security - Wright elaborates on this assertion of equivalence in a section carrying what one senses is the deliberately provocative title *PRIMITIVE INSTINCTS*,

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<sup>280</sup> Frank Lloyd Wright, *The Disappearing City* (New York: William Farquhar Payson, 1932), 4-5.

where following his division of society into two types, Wright equates the historic cave dweller with the conservative urbanite:

*Time was when mankind was divided between cave dwellers and wandering tribes...The cave dweller was the ancient conservative...*

*The cave dweller became the cliff dweller and began to build cities. Establishment was his. His God was a statue more terrible than himself, a murderer, and hidden in a cave.*

*This statue he erected into a covenant.<sup>281</sup>*

Beyond the loaded implications of this statement, there are two potent references worth pausing to elucidate here, as they introduce figures that will return again in the closing chapters.

The first is the passage - ‘the cave dweller became the cliff dweller and began to build cities’, ‘establishment was his’ - as it potentially reveals a deep insight into Wright’s attitude about the well-known Cliff Dwellers Club, a private civic arts organization in Chicago, of which Wright was a charter member, but which he came to be disillusioned about. The club was founded in 1907 by author Hamlin Garland – and still exists, having come to accept female members since 1984 – and from 1908 until 1996 it was located in the top two floors (8<sup>th</sup> and 9<sup>th</sup>-story penthouse) of Orchestra Hall. Although Wright was a charter member of the organization, it soon came to represent to him the negative side of ‘the establishment’ – it came to appear to him an undemocratic circle of architectural and political urban powerbrokers, essentially antagonistic to his own comparatively individualistic *rural* aims. His description of *cave dwellers cum cliff dwellers cum urbanites cum establishment* is consistent with his distrustful descriptions of social clubs of all kinds. Wright never joined professional architectural organizations, and was a lifelong critic of the American Institute of Architects - even after they awarded him the AIA Gold Medal in 1956, calling it ‘a harbor of refuge for the incompetent.’<sup>282</sup> He admired Thomas Jefferson in many ways, but unlike his hero Wright refused to become a Freemason or to join any secret society – his explicitly pointed critique of which is apparent in his description of the cliff dweller’s profane and idolatrous ‘covenant’ with a god ‘more terrible than himself’, ‘hidden in a cave’, and which has connotations echoing Plato’s critique of the tyranny of power in his description of the characteristic betrayal of the faith placed by the public in military establishment. Just so, and perfectly consistent with all this, was Wright’s resolute pacifism, as is evidenced in his decades of anti-war broadsides, published as Taliesin Square Papers from the 1930s, and his assertion that his only

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<sup>281</sup> Wright, 5.

<sup>282</sup> Frank Lloyd Wright, *Frank Lloyd Wright: His Living Voice*, ed. Bruce Brooks Pfeiffer (Fresno: California State University Press, 1987), x56.

religion was Nature ('with a capital N'), which he argued allowed him to build churches for any denomination of faith.<sup>283</sup>

And so it was that when Wright left his wife in 1909, against the loud and sustained disapproval of the social establishment, he also distanced himself from the Cliff Dwellers Club, as he did from all other social organizations rather decisively at that moment. Nevertheless, he later gave grudging acknowledgement of it as having been of value to his mentor, writing - in the same year as these references were made equating cliff dwellers with the urban establishment - of his last visits with Louis Sullivan, that his 'Lieber Meister' [Sullivan] was, 'by now, safe in an armchair, life-member at the Cliff Dwellers club...It is one of the virtues of that organization that it did this for him.'<sup>284</sup> So the distinction between 'nomads' and 'cliff dwellers' is both potent and poignant.

The second point has been referred to already, and that is Wright's sense that 'the establishment', even when well intentioned, tends toward nefarious aims – he was critical of powers wielded by hidden and secretive means. This attitude is woven throughout his texts, and behind his aspirational references to democracy, ruralism and 'the sovereignty of the individual' is his suspicion of 'vested interests' in governance, business, and media. He rightly observed that such vested interests, not unlike the cliff dwellers, tend to ensconce themselves up high in urban settings – bringing us back to Wright's quote, where he goes on with his description of their 'brothers' from that other tribe, the nomads:

*His swifter, more mobile brother devised a more adaptable and elusive dwelling place, the folding tent. From place to place over the earth following the law of change, natural law to him, he went in changing seasons. An adventurer. His God was a spirit, a wind devastating or beneficent as himself.*<sup>285</sup>

Reflecting that these two 'divisions of the human family...made God in their own image,' he asserts that both cave dweller and nomad 'set up an enmity, each of the other.' Here he identifies the source of conflict he intends to highlight in his polemic between rural and urban – the ancient and well-founded mistrust that peace-loving individualists have of the military establishment.

*The cave dwellers bred their young in the shadow of the wall. The mobile tribes bred their young under the stars in such safety as seclusion by distance from the enemy might afford. So we may assume the cave dweller multiplied more swiftly than his brother. But more complete was his destruction, more terrible his waste when his defenses fell. His walls grew heavier as he grew more powerful. When he ceased to find a cave he made one.*

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<sup>283</sup> Wright, x22.

<sup>284</sup> Wright, *An Autobiography* (New York: Horizon Press, 1932) reprinted in Bruce B. Pfeiffer, Frank Lloyd Wright Collected Writings Vol.2: 1930-1932 (New York : Scottsdale, AZ: Rizzoli, 1992), 297.

<sup>285</sup> Wright, *The Disappearing City*, 5–6.

*The fortification became his. Cities were originally fortifications. The cave dweller's human counterpart cultivated mobility for his safety. Defenses, for him, lay in swiftness, stratagem, physical prowess and such arts as Nature taught.*<sup>286</sup>

In this historic context, the contrast Wright highlights is vivid, but he goes on to observe that although the wandering tribes seem to have since been gradually overcome, 'by the material defenses and the static forces of the material establishment of the cave dweller,' he remains optimistic that we can learn the value of freedom from the nomad:

*I imagine that the ideal of freedom that keeps breaking through our establishments...is due in some degree to the original instinct of the adventurer...who lived by his freedom and his prowess beneath the stars rather than he who lived by his obedience and labor in the shadow of the wall.*<sup>287</sup>

This freedom-loving rural nomad represents optionality, mobility, and individuality – a stark contrast to the security-loving urban cliff dweller. It is telling that this passage is only slightly revised in *The Living City*, twenty-six years later, clarifying his intent so as to specify that the establishments he is referring to are 'present static establishments' – and adding a concluding sentence to explicitly contrast his earlier characterization of the cliff dweller as 'the ancient conservative' with his counterpart by posing a question:

*The nomad? Is he thus prototype of the democrat?*<sup>288</sup>

Wright's provisional answer was already given in the original text, and the passage concludes with an overview of the historic dynamic between these two tribes as parts of the whole of civilization:

*However that may be here two human natures have married and brought forth other natures. A fusion of natures in some. A straining confusion in others...Gradually the body of mankind, both natures working together, has produced what the body of mankind calls civilization. Civilizations become conscious, insist upon, and strive to perfect culture. In this matter of civilization, the shadow of the wall has seemed to predominate, though the open sky of the adventurer is far from disappearing. As physical fear of brutal force and any need of fortification grow less, so the ingrained yearning for the freedom of the mobile hunter, surviving, finds more truth and reason for being than the stolid masonry or cave dwelling defenses erected and once necessary to protect human life and now slumbering in the manufacturer, the agrarian and the merchant. Those defenses, in any case, modern science and war have made useless and a man's value may again depend not so much on what he has as upon what he can*

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<sup>286</sup> Wright, 6.

<sup>287</sup> Wright, 6.

<sup>288</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 5:259.

*do. So, by way of modern resources, a type is developing capable of changing environment to fit desires and offset losses to the type sinking permanently into the "shadow of the wall," - the big city.*

*It is already evident that life now must be more naturally conserved by more light, more freedom of movement and a more general spatial freedom in the ideal establishment of what we call civilization. A new space concept is needed. And it is evident, in this need, that it has come.*

*Modern mobilization, as a leading factor, is by way of modern means of transport, having its effect upon the nature of the care dweller - this city brother who submitted obedience to man to be well saved by faith and not by works. But it is only a natural means of realization returning to his brother of the wandering tribe.*

*So, the "Machine" is at work moulding as well as destroying human character.<sup>289</sup>*

Having identified the ‘rural nomad’ as the primary beneficiary of modern mobilization, this passage also clarifies Wright’s early and unbridled enthusiasm for the automobile. It is a testimony to these insights that their themes of nomadism and freedom of mobility were championed by landscape urbanists like Adriaan Geuze, whose influential essay *Accelerating Darwin*, written nearly sixty years later, boldly claims that:

*The contemporary urbanite...lives as a nomad and covers large areas. He continuously changes his environment, and in the process, his identity: his mobility is for commuting, for recreation, and for tourism. Speed and time have replaced the traditional concept of space. His movement is unbounded by tracks in the void of changing configurations. The urban landscape bombards city dwellers with images, signs and advertisements, creating an addictive sequence of events. Everyday highway sensations are superior to the winding scenic paths of the nineteenth-century parks. The roles are reversed: it is not the composed, picturesque landscape that undulates, but it is the man who floats streamlined movement through the landscape.<sup>290</sup>*

In contrast to Wright’s suggestively tentative description of ‘a fusion of natures’, this breathless homage to placeless experience, ostensibly conferring the benefits of automobility to urbanites, clearly belongs to its pre-crisis era. It was deliberately polemic then, and even if the desire for a hybrid nature it describes retains some validity, the intervening twenty-five years since it was written leave us more skeptical of its assertions than of Wright’s text written nearly a century ago.

Certainly Wright’s own adventurous mode of nomadic existence was demonstrably more in tune with the broader, cyclical expressions of nature identified at the beginning of the chapter. For example, from 1937 until today the community he co-founded, the Taliesin Fellowship, spends the

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<sup>289</sup> Wright, *The Disappearing City*.

<sup>290</sup> Adriaan Geuze, “Accelerating Darwin,” in *Dutch Landscape Architecture: Between Tradition and Experiment*, ed. Smienk Gerrit (Amsterdam: Thoth, 1993), 12–23.

summer months (May-September, 5 months) at Taliesin in Wisconsin and the winter months (October-April, 7 months) at Taliesin West in Arizona. The similarities and differences between these two campuses provide powerful evidence of how the design can respond to contextual factors, and we will return to them in greater detail (*3.3\_Do It Yourself*).



[fig.16\_Taliesin (right) and Taliesin West (left)] *Images: the author*

For the moment, to conclude, it is sufficient to point out that while Wright derided the cliff dweller's urbanism and praised the nomad's ruralism, he knew and inhabited both realms. And what Wright initially learned building in rural contexts he later applied in urban ones, and vice versa. Among the first statements Wright issued to follow up his rural urban polemic *The Disappearing City* was the following, made three years later in an article published in Architectural Record and titled *Broadacre City: A New Community Plan*:

...the ground itself predetermines all features; the climate modifies them; available means limit them; function shapes them.<sup>291</sup>

Among the heuristics Wright authored and cited in attempting to convey design principles, this concise formulation of the role of context provides perhaps the clearest insight into contextual dynamics – insight equally relevant in rural and urban settings, for nomad and cave dweller.

#### *vii. Conclusion*

In this section we have evaluated contrasting historic modes of existence, some of their relative advantages and disadvantages, and the suggestion of their coincident interpretation as rural and urban. We have further considered the complementary themes of habitat and mobility – deriving some physiological and social implications of lifestyles based on ecological cycles, and introducing the notion of optionality as a basic tenant of the nonlinear paradigm.

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<sup>291</sup> Frank Lloyd Wright, “Broadacre City: A New Community Plan,” *Architectural Record* 77, no. April (1935).

Taken together, Wright's 'nomad and cave dweller' identify a comprehensive, regional scope for architectural design. In so doing both evoke a deeper principle common to all living things, a heuristic identified by British geographer Jay Appleton as *prospect and refuge theory*, which suggests that all living things, by evolutionary preference, tend to prefer situating themselves in such a way as to optimize two key variables: as much protection as is possible at one's back, and as much view as is possible at the front. The deeper implications of *prospect and refuge theory* will be taken up in a subsequent chapter. (1.2\_ *Via Negativa*) For now it is enough to say that *prospect and refuge theory* provides another vivid example of how it is that the sciences on the whole are characterized by their efforts to identify similarities and differences in the spatial and temporal expressions of the inter-scalar patterns of nature.

In *The Grand Design* (2012) noted theoretical physicist Stephen Hawking suggests that finally there are only two types of laws in physicist's 'landscape' – those that pertain to time and space, and those that pertain to edge conditions – and that these can be addressed from the bottom-up (with direct observation and measurement) and from the top-down (with theory and extrapolation).<sup>292</sup> Of these he states that while the top-down approach likely holds certain promise for the future, the bottom-up approach is still more reliable in daily practice.

I believe this is an instructive observation for designers to take note of, as it is equally as pertinent to the design of rural and urban regions – we need both bottom-up and top-down approaches, but the bottom-up approach is, for designers, still more reliable in daily practice. As with the two types of laws and the two approaches Hawking identifies, the take away point for designers is to learn how we relate rural and urban with one another – for which purpose we will turn from science's 'biological analogy' to art's 'musical analogy'.

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<sup>292</sup> Stephen Hawking, *The Grand Design* (London: Bantam, 2010), 136–41; n. Regarding etymology once again, verifying that the word 'design' is also used by scientists in a manner consistent with Terzidis's interpretation, as cited in the next chapter. See Kostas Terzidis, "The Etymology of Design: Pre-Socratic Perspective," *Design Issues* 23, no. 4 (October 1, 2007): 69–78, <https://doi.org/10.1162/desi.2007.23.4.69>.

### 1.1.3 The Musical Analogy – Contrapuntal Thinking

*Considering the implications of periodicity for the design of regions, as of buildings, acknowledging that we don't really create anything, only push things around. Conceiving of design as highlighting existing reality - from light spectra, to sound, to soils - and of cut and fill as a fundamental approach addressing the need for continuity.*

#### i. Introduction

Every thesis calls for its antithesis, and every revolution prompts a counter-revolution – this takes place within the same generation, as well as across intergenerational oscillations.<sup>293</sup> Enlightenment thinkers were critical of the Humanist tradition of analogical thinking – their own encyclopedic enthusiasm was intent upon creating a lexicon of the world, an ambition that has been assiduously realized in contemporary Geographic Information Systems (GIS) and empirical attitudes toward industrial agriculture and managerial urbanization. However, in linguistics languages are always comprised of two parts – a lexicon and a grammar – structural categories that coincide directly with the two fundamental modes of learning, *analogy* and *abstraction*, another essential duality we will address in this chapter.<sup>294</sup>

I have argued that analogical thinking, focused as it is on seeing relations between parts, is particularly well suited to provide conceptual frameworks for contextual design. Further, in order to harness the power of polemics, we can anticipate that at least two conceptual paradigms, polarities to one another, are needed in any given moment – and that these are best conceived of as opposite, but not exclusive of one another.<sup>295</sup> As any given analogy will inevitably prompt justifiable reactions against it, I propose developing design methods working between those two oldest and most enduring architectural analogies: the biological analogy (on growth and form) and the musical analogy (on composition and form). Of these the biological analogy is clearly the best established and in ascendancy – see, for example, Philip Steadman’s seminal *The Evolution of Designs: The Biological Analogy in Architecture and the Applied Arts*,<sup>296</sup> or Lynn Margulis’ *The Basic Unit of Life*.<sup>297</sup>

Having dedicated the previous chapter to the biological analogy, the following chapter addresses the musical analogy, made with a view to its instrumentality for composing rural urban dynamics in relation to existing landscapes. Working from the premise that ‘rural’ is the blind spot of our era, and noting that every urban block has a displaced and proportionally vast rural footprint, I will attempt to demonstrate that Frank Lloyd Wright’s call for a ‘humane proportion’ of industry and agronomy is as timely as ever. In short, I believe the work evaluated here can be interpreted as a signal with the urgency of a flare shot from a ship lost at sea, prompting our generation to develop

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<sup>293</sup> José Ortega y Gasset, *Man and Crisis*, trans. Mildred Adams (New York: W. W. Norton & Company, 1962); Richard Sennett, *The Fall of Public Man* (Cambridge Eng.: Knopf, 1976).

<sup>294</sup> Dedre Gentner and Christian Hoyos, “Analogy and Abstraction,” *Topics in Cognitive Science* 9, no. 3 (July 1, 2017): 672–93, <https://doi.org/10.1111/tops.12278>.

<sup>295</sup> Marot, *Sub-Urbanism and the Art of Memory*.

<sup>296</sup> Philip Steadman, *The Evolution of Designs: Biological Analogy in Architecture and the Applied Arts*, Revised Edition 2008 (London; New York: Routledge, 1979).

<sup>297</sup> Margulis and Mulder, “The Basic Unit of Life.”

'counterpoint' as a teaching and disciplinary framework around the historic narrative of *coincidentia oppositorum* – the coincidence of opposites, an idea first suggested by Heraclitus - with the purpose of designing for rural urban dynamics where opposites are regarded as complementary, rather than exclusive of one another, and are fundamentally based on the periodic dynamics of existing landscapes and social structures.

According to the counterpoint analogy, existing environmental conditions can be seen as the *cantus firmus* upon which two contrapuntal 'voices', the dual networks of rural and urban infrastructure, are established. This analogy broadly coincides with the oscillating nature of periodicity, an energetic principle that underlies all phenomena – from subatomic behavior, to respiration, to the circuits of the stars – as is interrogated in the field of *chronobiology*, the study of periodic phenomena in living organisms and their adaptation to solar- and lunar- rhythms. Whether addressing the polarities of disciplinary or political polemics, of climate change induced sea-level rise and desertification, of urban and rural districts, of structural oscillations between tension and compression, or of cut and fill procedures on site, *contrapuntal thinking* – as a mode of thinking explicitly intended to advance that historic paradigm of *coincidentia oppositorum* – can provide architects with a conceptual design framework yielding insights into periodic principles underlying both natural and artificial systems.

### *ii. Harnessing Polemics*

A public event at the Harvard Graduate School of Design commemorating the 50<sup>th</sup> anniversary of the urban design field featured a discussion between advocates of 'New Urbanism' and 'Landscape Urbanism'. The moderator, Michael Sorkin, concluded the polemic event with the statement:

*Let's make humane, equitable, sustainable and beautiful cities. . . Cities need to supply their own food, energy, water, thermal behavior, air quality, movement systems, building and cultural and economic institutions. This urban self-sufficiency is a means to political autonomy and planetary responsibility. Sustainable, equitable, and beautiful...<sup>298</sup>*

In staking out this common ground, Sorkin puts his finger on the need for urban designers to be tuned in to their responsibility to champion public interest and engage the public imagination. But it is important to consider whether cities really should be, or even could be, self-sufficient.

As we have seen in the previous chapter, Johann Heinrich von Thünen's *The Isolated State* of 1826 put forth principles relating the 'city of commerce' with its rural hinterlands as illustrated with a simple diagram. The figure is again shown here, now in somewhat elaborated form representing an

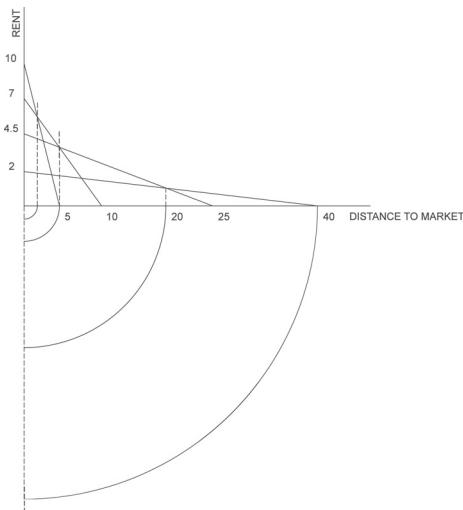
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<sup>298</sup> Genevieve Sherman, "GSD Throwdown: Battle for the Intellectual Territory of a Sustainable Urbanism," *Urban Omnibus* (blog), November 17, 2010, <http://urbanomnibus.net/2010/11/gsd-throwdown-battle-for-the-intellectual-territory-of-a-sustainable-urbanism/>.

idealized central city in an unarticulated field, surrounded by a series of concentric rings defining production zones whose distance from the city is determined by an equation relating key variables:

$$R = Y(p - c) - Yfm$$

The equation's simplicity supports its utility – advancing the rational principles of a self-sufficient city based on capital and rent, ostensibly conceived of as neutral and objective – where  $R$ =*land rent*,  $Y$ =*yield per unit of land*,  $c$ =*production expenses per unit of commodity*,  $p$ =*market price per unit of commodity*,  $F$ =*freight rate*, and  $m$ =*distance to market*.



[fig.1\_von Thünen, elaborated diagram] A proximity-based theory of rent. *Image: the author*

But analysis of real, historic capital networks shows that the reach of the city's economic footprint is much broader and more uneven.<sup>299</sup> This 'uneven development' was identified by Marx as being a fundamental characteristic of capitalism, leading to the simultaneous emergence of concentrations of wealth and capital on the one hand, and to poverty and oppression on the other. In extreme cases of 'uneven development', short-term economic gains often involve the permanent loss of the very ecologies and social structures on which both rural and urban rely.

In principle, of course, every artificially created thing is only other things rearranged – that is to say, displaced and re-composed. The surface extraction of materials, mining and open pit mining, vividly illustrate the 'cut and fill' nature of architecture, infrastructure and urbanization. It is important that designers look to the origins of the resources they work with, and acknowledge that the extraction of subterranean resources like water, oil and 'natural' gas from distant regions cause geological fractures and leave substantial underground voids, destabilizing the land above, depleting and poisoning groundwater, and causing sinkholes and earthquakes. Recognition of the importance of regional context must therefore broaden the conceptual scope of urban designers.

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<sup>299</sup> William Cronon, *Nature's Metropolis: Chicago and the Great West*, 1St Edition edition (New York: W. W. Norton & Company, 1992), 285–91.

### *iii. Second Nature*

Since their historic appearance about 10,000 years ago in the Fertile Crescent, the cradle of civilization, urbanization and agriculture have been inter-related. In *De Natura Deorum* (*The Nature of the Gods* ca. 45 BC) Cicero coined the term *second nature* to describe the domain of infrastructure relating urban and rural districts within their regional contexts, writing: "...we sow cereals and plant trees; we irrigate our lands and fertilize them. We fortify riverbanks, and straighten or divert the courses of rivers. In short, by the work of our hands we strive to create a sort of *second nature* within the world of nature."<sup>300</sup> The fundamental reliance of cities on this designed *second nature* within a contextual *first nature* is illuminated by Kostas Terzidis: "In Greek, the word 'design' is *schedio*, which is derived...from the word *eschein*, which is the past tense of the word *ebo*, which ... means to have, hold, or possess. Translating the etymological context into English, it can be said that design is about something we once had, but have no longer."<sup>301</sup> This recognition of design as an activity that reveals pre-existing qualities and implicit relationships that are neglected, obscured or forgotten is very different than the idea of invention or stylistic innovation generally associated with design. Terzidis points out that design and planning are terms that, while often conflated, have quite different implications. "Design is about conceptualization, imagination, and interpretation. In contrast, planning is about realization, organization, and execution...Design provides the spark of an idea and the formation of a mental image."<sup>302</sup> These mental images are shaped through the dual processes of *analogy* and of *abstraction*, by which concepts are derived from the classification of experiences and information.

As opposed to the proportional relations suggested by analogical thinking, I argue that contemporary idealization of the city as self-sufficient abstracts and conceptually isolates the urban from the rural, and from those very natural and cultural systems that make the city possible to begin with – leaving rural communities and landscapes to be exploited as territorial *hinterlands*. In *Method in Social Science: A Realist Approach*, Andrew Sayer writes, "A bad abstraction arbitrarily divides the indivisible and/or lumps together the unrelated and the inessential, thereby 'carving up' the object of study with little or no regard for its structure and form."<sup>303</sup> The self-sufficient city - like the idealized, undifferentiated planar surface of von Thünen's *The Isolated State* - is hardly to be seen in reality. Likewise, the Cartesian grid is prized for its conceptual simplicity as an interscalar system of reference, but as a design framework at the regional scale of it is hardly capable of responding to the complex topography of mountains and river valleys. One well-established model more capable of responding to the complex interactions between rural and urban networks and their sites can be found in

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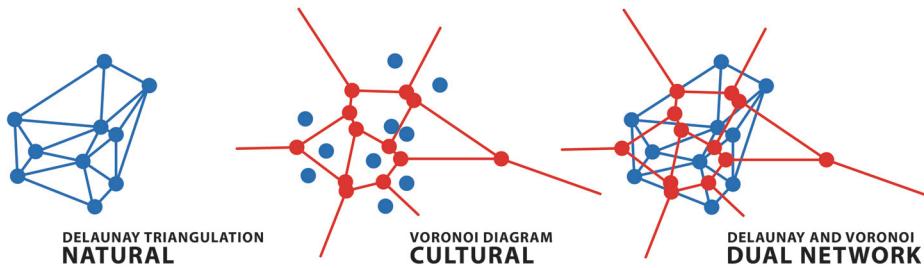
<sup>300</sup> Cicero, *De Natura Deorum: The Nature of the Gods*, bk. 2:152.

<sup>301</sup> Terzidis, "The Etymology of Design," 69.

<sup>302</sup> Terzidis, 69.

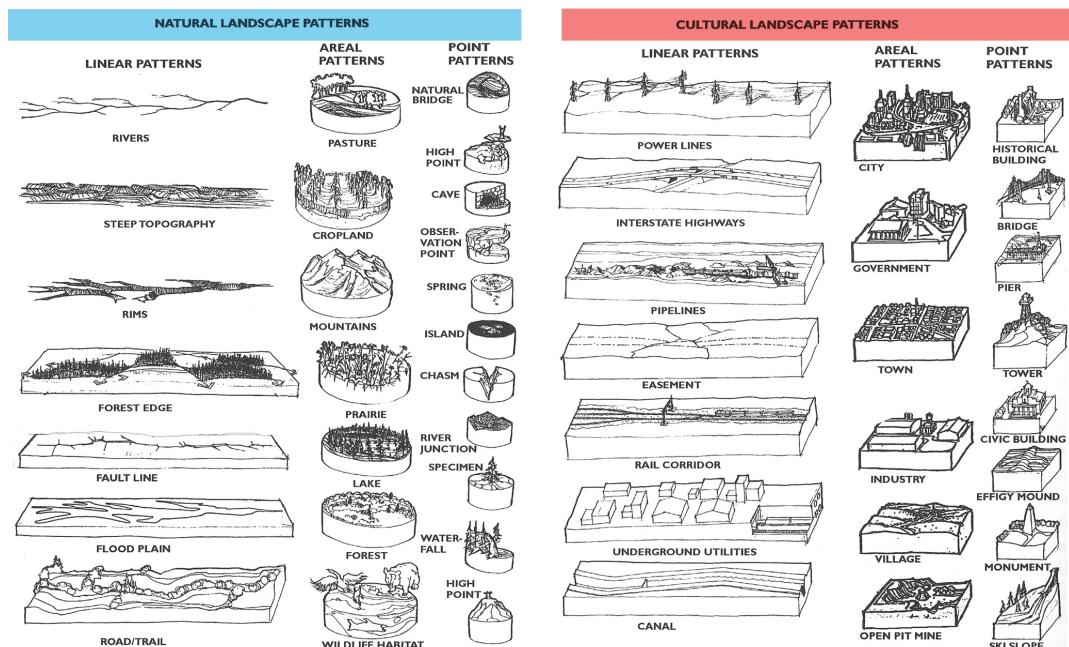
<sup>303</sup> Andrew Sayer, *Method in Social Science: A Realist Approach*, 2 edition (London: Routledge, 2010), 93.

computational geometry: the dual network triangulation method of *Voronoi diagrams* and *Delaunay triangulation*, as seen in the accompanying figure.



[fig.2 dual network] Natural and cultural infrastructural networks are arranged in counterpoint to one another, together forming a dual network as second nature. *Image: the author, after Lewis.*

The Voronoi/Delaunay dual network can be read as a conceptual framework for understanding urban and rural as phases of the same civilizing force, *second nature*. *Second nature* is sited within first nature, and together these constitute a higher-level Voronoi/Delaunay dual network.



[fig.3\_Lewis natural cultural patterns] Lewis's assessment of natural and cultural landscape patterns corresponds with Voronoi/Delaunay dual networks, identifying linear, point, and areal patterns as the constituent geometries of each. An analysis of existing conditions provides the cantus firmus underlying the arrangement of the natural / cultural dual network. *Image: the author with Philip H. Lewis, FASLA.*

As the notion of these nested geometries can extend to three and higher dimensions, generalizations are possible in metrics other than Euclidean ones, and in principle they resemble the periodic optimization that is seen in the ‘nesting’ interaction of normal matter and dark matter distributed throughout the universe itself. Quantum physicists even refer to the entire set of the known laws of physics as the ‘landscape’, echoing Bohr’s inter-scalar analogy. Such recurring analogies highlight how the principle of periodicity can inform a conceptual model of design that is both more holistic and more responsive to the underlying ecological and social realities of rural urban dynamics.

#### *iv. The Origins of the Musical Analogy*

Music is among the earliest and most enduring of architectural analogies. Following Cicero in the first century BC, a period in which some of the greatest works of Roman infrastructure were established, the architecture of Vitruvius was largely based on the proportional musical investigations of Pythagoras (570-495 BC). In the fifteenth century, shortly after the rediscovery of Vitruvius, these Pythagorean principles were greeted with renewed enthusiasm. In Chapter VI of his *De re aedificatoria* (*On the Art of Building*), Leon Battista Alberti methodically develops the relationship between proportion and architectural form, writing: "We shall therefore borrow all our Rules for the Finishing of our Proportions, from the Musicians, who are the greatest Masters of this Sort of Numbers, and from those Things wherein Nature shows herself most excellent and complete."<sup>304</sup>

The term *contrapunctus*, from the Latin *punctus contra punctum* ('point against point' or 'note against note'), initially appeared around 1300. In 1412 the Italian theorist Prosdocio de Beldemandi wrote that rather than dealing with note against note individually, the composer was actually concerned with the problem of *cantus contra cantum* – one complete melody against another – thus requiring a new integration of vertical (harmonic) and horizontal (melodic) concepts.<sup>305</sup> With this realization counterpoint gradually came to be recognized in its full complexity, resulting in the 'golden age of polyphony'.<sup>306</sup> It is interesting to note that it was just one year later, in 1413, that architect Filippo Brunelleschi established the geometric method of perspective drawing. Indeed, both counterpoint composition and perspective drawing illustrate the emergence of three-dimensional thinking - the composer dealing with multiple voices in time in a manner very similar to the architect's newly contextual conception of buildings within a multilayered landscape. In both cases the breakthroughs involved new insights into proportional principles underlying physical reality. In perspective drawing this was a system of proportions on paper that accurately related to actual sizes and distances, while counterpoint composition addressed resonant harmonic phenomena and the means of engendering it - namely the range of voice or instrument. Beyond being merely *picturesque*, these developments illustrate the capability of *design* to derive meaningful order from apparent complexity.

In 1725 the Viennese musician and theorist Johann Fux published *Gradus Ad Parnassum*, a work that was to set the standard for counterpoint composition to this day. Written in the form of a classical Greek dialogue between an elder master composer and his young apprentice, the lessons are laid out in sequence according to what had by then become the five 'species' of counterpoint, from the simplest to the most complex: first species – whole note against whole note; second species – whole

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<sup>304</sup> Leon Battista Alberti, *Ten Books on Architecture: A Complete Reprint from the 1755 Edition*, trans. Joseph Rykwert (London: Tiranti, 1965), 196–200.

<sup>305</sup> Prosdocimus de Beldemandi, *Contrapunctus*, ed. Jan W. Herlinger (Lincoln: University of Nebraska Press, 1984), 28.

<sup>306</sup> Johann Joseph Fux, *Gradus Ad Parnassum*, trans. Alfred Mann, 1965th ed. (New York: W. W. Norton & Company, 1725), viii.

note against two half notes; third species – whole note against four quarter notes; fourth species – whole note against syncopated whole note; fifth species – florid counterpoint, using all the previous species. Further, based on sophisticated insights into harmonic phenomena assiduously obtained by the cumulative effort of many generations, the set of additional rules had become highly nuanced: consonances were now categorized as perfect or imperfect, and the octave could be subdivided harmonically or arithmetically; the possible movement of simultaneous voices in relation to one another was carefully categorized into three types of motion – direct motion (two lines moving parallel), contrary motion (two lines moving in opposite, mirrored fashion), and oblique motion (one line moving while another remains stationary) – and the use of these motions was likewise determined by a set of rules relating perfect and imperfect consonances.<sup>307</sup>

One of the most interesting rules to have developed throughout this process, insofar as it provides a direct connection back to contemporary architectural discourse, is the use of the *cantus firmus* as the basis for contrapuntal composition. A *cantus firmus* (fixed song) is an existing melody taken from elsewhere and used as the basis for the composition, with each additional voice composed fundamentally in relation to it, and in relation to one another. It becomes the site of interpretation, the *terra firma* of the composition, as it were, making the entire compositional procedure explicitly contextual and interpretive.



**[fig.4\_musical analogy]** The musical analogy is among the most enduring of conceptual models for architecture. Counterpoint compositions begin with the *cantus firmus*, a fragment of existing music. At the scale of the city and its regional context, this linear structure presents a compelling conceptual model for natural and cultural equity. *Image: the author, after Tureck.*

#### v. How to Think Contrapuntally

Discussing the contemporary relevance of contrapuntal composition, concert pianist and music scholar Rosalyn Tureck (1914-2003) asserted that its foremost feature was as a conceptual model, maintaining that there was a deep conceptual correlation in Bach's music between sound wave periodicity, ornamental figurations, melodic and rhythmic phrasing, and the overall harmonic structure of his compositions.<sup>308</sup> So fascinated was she by this correlation that she made it the subject of her lifelong research, and founded a series of research societies dedicated to disciplinary interaction about the subject. Among her noteworthy collaborators were evolutionary biologist Stephen Jay Gould, physicist Roger Penrose, and mathematician Benoit Mandelbrot, whose fractal geometry had by then

<sup>307</sup> Fux, 21–23.

<sup>308</sup> Rosalyn Tureck, In conversation with the author, December 1999.

emerged as the go-to analogy for understanding principles of self-similarity in the new age of complexity. In response to a paper called *The Fractal Geometry of Music*,<sup>309</sup> in which a series of fractal metaphors were suggested to exist in the music of Bach, Tureck penned a detailed response nearly as long as the article itself. “I am delighted to see the interest in the deeper levels of musical composition,” she wrote, “...However the article sets down assumptions and conclusions about musical structure which are not only based in subjective interpretation but also contain sweeping blanket statements which cancel out any possibility of the validity of their claims...Bach was clearly not concerned with fractal relations and fractal theories. The fact that the authors find a ‘significant deviation’ simply demonstrates the fact that their theories are...artificially created. ‘Deviations’ are a very convenient way for excusing the inapplicability of a theory. This is not to say that the possibility of analysis of music in terms of Mandelbrot’s theories is impossible.” She finally concludes, “If one is looking for the fractal geometry of music, which I applaud wholeheartedly, then the steps taken must be based on something immeasurably more solid and accurate than what appears in this article.”<sup>310</sup> For Tureck the most promising contrapuntal analogies were fundamentally conceptual, having to do with insights obtained by what she described as *contrapuntal thinking*, rather than by attempts to force analogies into a theory after the fact. In her opening editorial essay for the first volume of *INTERACTION – Journal of the Tureck Bach Research Foundation*, she writes,

‘Interdisciplinary’, ‘intercommunicative’, ‘interface’, and ‘interpersonal’, are the guiding icons in the currents of contemporary thought. These constitute varied facets of interaction. The assembly of essays on areas such as physics, mathematics and music, conventionally regarded as disparate, must speak for itself on the platform of interaction...we have [long] known that there is a correspondence between sound waves and arithmetic. But composed music is more than wavelengths, vibrations, and number. It partakes of, indeed its very essence is dependent upon, processes of thought, form and structure. These processes are abstract; they have to do with mental concepts, not aural activities. They are not technological realizations, nor is their reception limited to physiological, aural responses and emotional, imaginative experience. The abstract processes that create music underlie the acts of musical creativity and performance, which also affect levels of both conscious and unconscious experience in reception. Abstract realms of concept, form and structure are not the sole possession of the sciences. The powerful impact of...the arts and the sensuous blandishments emanating from the tools of the musical art tend to overshadow the abstract concepts and processes underlying them and from which their forms emerge...On the other side of the coin, the materialistic thinking that characterizes recent centuries and which has so blatantly crescendoed in our own past century, has emphasized materials, technological tools, and specialized methodologies as prime movers over and above abstract concepts and processes.<sup>311</sup>

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<sup>309</sup> Kenneth Hsu and Andreas Hsu, “Fractal Geometry of Music,” *Proceedings of the National Academy of Sciences of the United States of America* 87 (1990): 938–41.

<sup>310</sup> Rosalyn Tureck, “Unpublished Letter,” 1990.

<sup>311</sup> Rosalyn Tureck, ed., *Interaction - Journal of the Tureck Bach Research Foundation*, vol. 1 (Oxford: OUP, 1997).

In her scholarship Tureck focused on identifying the characteristics of *contrapuntal thinking* on the basis of what could be found in the music itself. In the preface to her three-volume *An Introduction to the Performance of Bach*, she writes: "...the interpretive suggestions are founded on deep principles which grow out of the music itself."<sup>312</sup> The second volume features a chapter with the compelling title 'How to Think Contrapuntally', where she explains: "By contrapuntal thinking I mean the following: firstly, the ability to think simultaneously in two or more parts; secondly, the ability to envisage motives continually shifting in the parts; and thirdly, the ability to preserve the relation of the parts to each other successively as well."<sup>313</sup> Throughout the three volumes she returns to this theme, giving special emphasis to the relationship between ornamentation and structure – often describing the nature of this relationship using terms like 'integral' and 'organic'. "The term 'ornamentation' gives the impression, to the modern mind particularly, of something extraneous and dispensable. In the music of Bach and his predecessors this is quite wrong. The first point to learn about ornamentation is that for this music it is indispensable, and the second is that it is as much a part of the musical structure as the printed notes."<sup>314</sup> Under the heading of 'structure' she writes, "Ornaments always are and must be conceived as an intrinsic part of the structure..."<sup>315</sup>

Familiar as she was with his work, we should not be surprised by how much Tureck's characterization has in common with Frank Lloyd Wright's conception of ornament as structural expression - which he, in turn, relates first to nature, and then to the contrapuntal music of Beethoven: "Integral ornament is simply structure-pattern made visibly articulate and seen in the building as it is seen articulate in the structure of trees or a lily of the fields. It is the expression of the inner rhythm of Form...What I am here calling integral ornament is founded upon the same organic simplicities as Beethoven's Fifth Symphony, that amazing revolution in tumult and splendor of sound built on four tones based upon a rhythm a child could play on the piano with one finger. Supreme imagination reared the four repeated tones, simple rhythms, into a great symphonic poem that is probably the noblest thought-built edifice in our world. And architecture is like music in this capacity for the symphony."<sup>316</sup> Of course, Wright was likely introduced to the idea of integral ornament through his mentor Louis Sullivan, for whom this ornament was nothing less than a bridge between nature and science, between the organic and the inorganic. Oscillating between the conceptual lens of the musical analogy and that of the biological analogy, Wright later described his ambition to develop this idea of integral ornament into more than a metaphor, making it the basis of the architectural plan itself: "But now, why not the larger application in the structure of the building itself in this sense? Why a principle working in the part if not living in the whole? If form really followed function...why not throw away

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<sup>312</sup> Rosalyn Tureck, *An Introduction to the Performance of Bach - Book I* (Oxford: OUP, 1960), 3.

<sup>313</sup> Rosalyn Tureck, *An Introduction to the Performance of Bach - Book II* (Oxford: OUP, 1960), 11.

<sup>314</sup> Tureck, *An Introduction to the Performance of Bach - Book I*, 7.

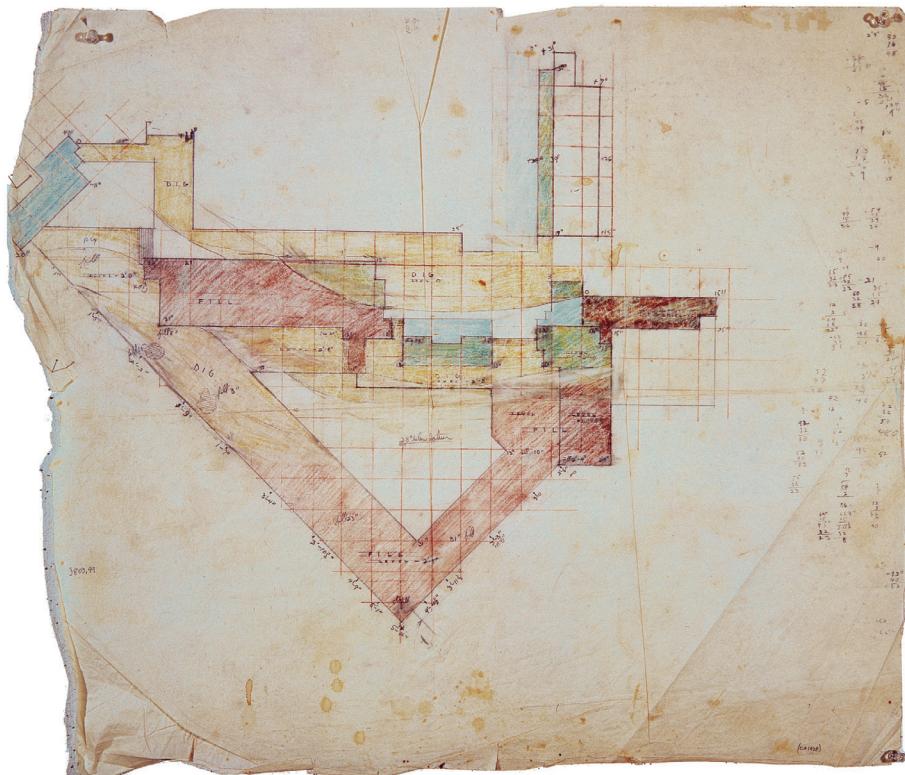
<sup>315</sup> Tureck, 8.

<sup>316</sup> Frank Lloyd Wright, *An Autobiography*, 3rd ed. (New York: Pomegranate, 2005), 347–48.

the implications of post or upright and beam or horizontal entirely?...Now why not let walls, ceilings, floors become seen as component parts of each other, their surfaces flowing into each other. To get continuity in the whole, eliminating all constructed features just as [Sullivan] had eliminated [planar] background in his ornament in favor of an integral sense of the whole. Here the promotion of an idea from the material to the spiritual plane began to have consequences. Conceive now that an entire building might grow up out of conditions as a plant grows up out of the soil.”<sup>317</sup>

#### *vi. Contrapuntal Landscapes*

The title of Reyner Banham’s *Architecture of the Well-Tempered Environment* is an allusion to J.S. Bach’s 48 Preludes and Fugues of *The Well-Tempered Clavier* (so called in reference to ‘well-tempered’ tuning, an innovation enabling modulation between all major and minor keys), although it contains no references to counterpoint - or even to Bach, for that matter. But there are dozens of references to Wright’s buildings, illustrating in detail the advanced integration of structural design, heating and cooling systems, lighting, passive ventilation and solar design – now early examples of the performative synthesis of architecture and environmental context.<sup>318</sup>



[fig.5\_1937\_Frank Lloyd Wright's cut and fill drawing for Taliesin West]

Gold=cut; red=fill. The campus was designed so as to incorporate as much material as was excavated – for neutral cut and fill – a kind of on-site periodicity. FLLW 3803.099

<sup>317</sup> Wright, 146–47.

<sup>318</sup> Reyner Banham, *The Architecture of the Well-Tempered Environment*, (Chicago: Univ. of Chicago Press, 1984).

Wright's telling observations about Sullivan's ornament can also be seen as having informed his conception of architecture as the attenuation of latent qualities as potentials *already existing* in the landscape. In reference to his regional-scale project, Broadacre City (1932-58), he described this contextual approach as follows: "...the ground itself predetermines all features; the climate modifies them; available means limit them; function shapes them."<sup>319</sup> This active regard for context results in a contrapuntal interplay between architectural and topographic form – as is brilliantly illustrated by the cut and fill diagram Wright himself drew for Taliesin West.

This illustrates one practical architectural application of the musical analogy – both the origin and destination of displaced materials are anticipated in the design process, acknowledging, as was stated earlier, that architecture is composed by the displacement of other things. At Taliesin West, proximity of material to building was immediate: earth cut from one part of the site was used to fill another, and the building itself was built of sand from the seasonal river 'washes' and stones found on site. Similarly, Wright's designs are typically composed so as to purposefully heighten the sense of security on one hand – often earth-integrated, backed into the site's topography through such cut and fill procedures as described above – and the sense of freedom on the other - sheltered spaces facing onto broad elevated terraces with panoramic views. Thus the relevance of *aesthetics* to what might appear a functionalist method can again be discerned by looking to the Greek etymology of the term, *aesthesia* (*αἴσθησις*), which pertains cumulatively to our *senses* – the sensory organs of sight, sound, smell, touch and taste, as well as to our cognitive *sensibilities*, including those of justice, wellbeing, and harmony. Therefore a *contrapuntal* design process involves composing designs in relation to their apparent opposite, and begins by identifying the *cantus firmus* - the stable, underlying ecological structure to which the design must respond and defer, and the social realities that design represents performatively and symbolically.

At the scale of the city, the initial steps of such design-analysis could be: 1) Identify Natural Landscape Systems, 2) Identify Void Design To Be Retained, 3) Identify Cultural Landscape Systems, 4) Ascertain Natural and Cultural Boundaries, 5) Ascertain Natural and Cultural Intersections. Emphasizing the fundamental priority of continuity in existing ecological and social systems, the *contrapuntal* application of such an approach can be seen in Arup's ongoing sustainability masterplan for the city of Addis Ababa, which correlates rural mobility and urban river corridors, and is predicated on the recognition that soils in the region have been severely depleted due largely to subsidization policies that have displaced traditional pastoralists in favor of intensive ranching methods.

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<sup>319</sup> Frank Lloyd Wright, *Broadacre City: A New Community Plan* (New York: Architectural Record, 1935).



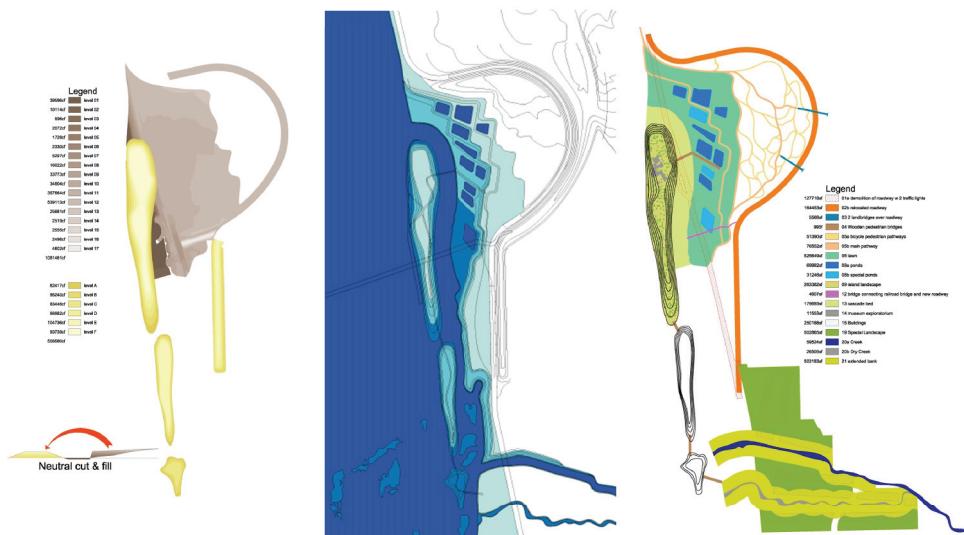
[fig6\_ Parallel Urbanism - Addis Ababa, Ethiopia, 2007] Addressing the strategic decentralization of cattle markets by locating them along a latent natural corridor network, the design relates both rural and urban interests and simultaneously creates safe mobility corridors, addresses erosion in the rivers and streams, improves water quality and access, and triggers public spaces with functional benefit to both adjacent and temporal parties. Initiated as a project with Prof. Marc Angélil at ETH-Zurich, it was later taken up by Arup as the basis for the sustainability masterplan they worked to prepare for the City of Addis Ababa, for whom I was taken on as a consultant – but Arup quit the project two years later, as the city government intended to use the masterplan as a pretense to make a land grab from the surrounding autonomous region. Despite Arup's protests, the city persisted and upon public presentation of the project the scheme was evident to journalists and was effectively reported upon. The land grab triggered mass protests on university campuses throughout the region; these were responded to violently by the militarized authorities, prompting further protests and leading to the current desperate situation, four years later - described by those involved on the community side of the conflict simply as 'civil war'. *Image: the author with Sebastian Alfaro Fuscaldó and Noboru Kawagishi.*

By strategically prioritizing soil and water management along with mobility throughout the city for pastoralists, the scheme demonstrates how, by turning away from notions of self-sufficiency, both rural and urban districts can benefit from the contextual composition of natural and cultural infrastructural systems. Likewise, West 8's topographically and hydrologically proactive design for the Tulsa Riverfront addresses a site that links rural and urban districts by making the landscape itself a visual and atmospheric register of seasonal water levels.



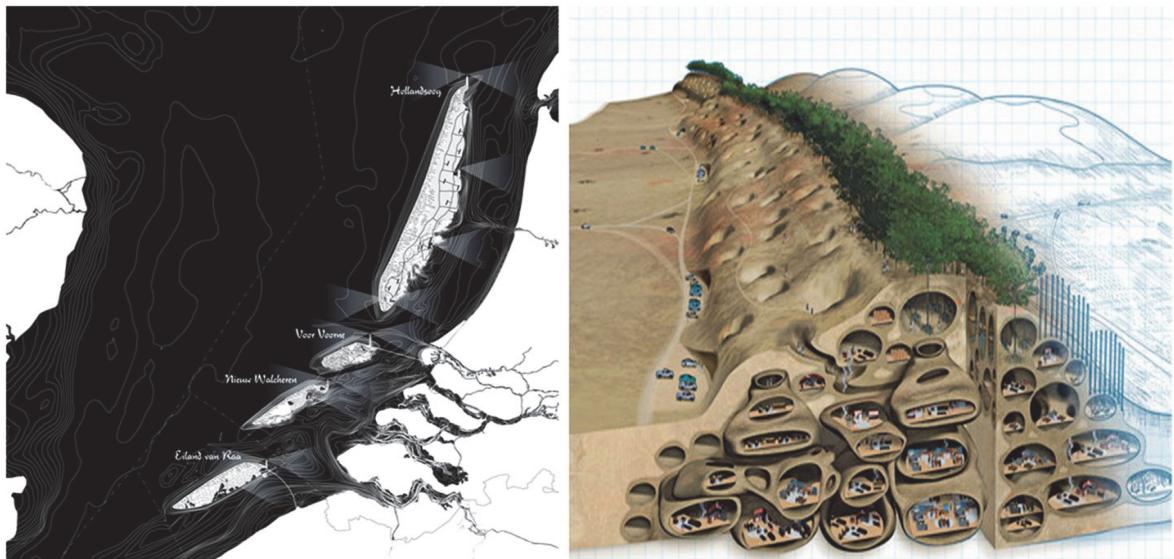
**[fig.7\_Tulsa Riverfront Plan]** West 8's design for Tulsa's Riverfront establishes strategic connections to both natural and cultural systems, and can be read as a gauge of seasonal water inundation levels by those crossing the site, itself a rural urban threshold. *Image: West 8 b.v.*

Restoring soils and disrupted hydrological flows, terraced retention basins yield water levels that can be read at a glance, communicating seasonal variability to highway commuters, and creating a variety of new water landscapes and habitats experienced by park visitors as visually distinct from one visit to the next. While these terraced ponds might be regarded as superficial – even sentimental – they are in reality integral ornament, a structural expression of the functional dynamics of the site as *second nature*.



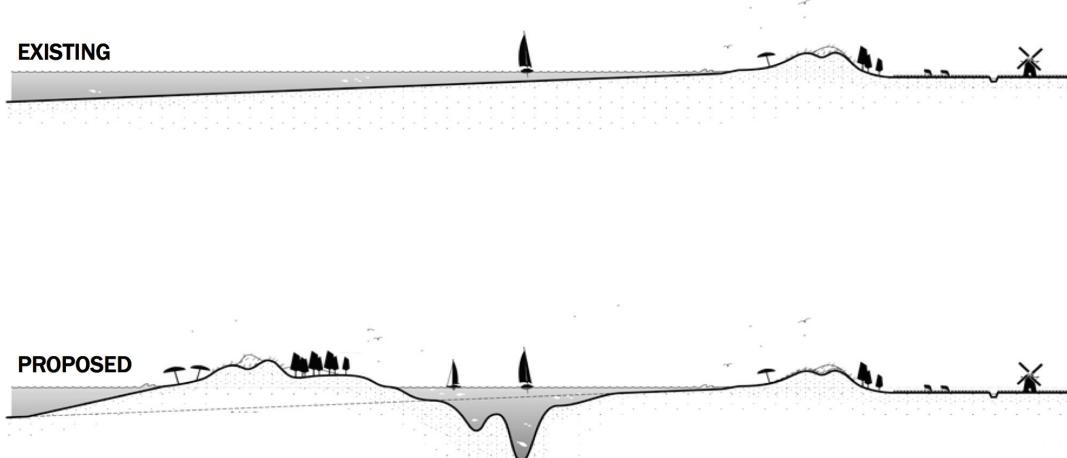
[fig.8: Tulsa Riverfront – Contrapuntal Planning, West 8, 2011] (left) Neutral cut and fill; (center) Design for seasonal inundation and water retention; (right) Programmatic integration and differentiation *Images: West 8 b.v.*

Another of West 8's projects, Happy Isles, takes this *contrapuntal* logic to its extreme – the creation of a series of new, sprayed-up sand islands to mitigate storm surges off the coast of Belgium and The Netherlands.



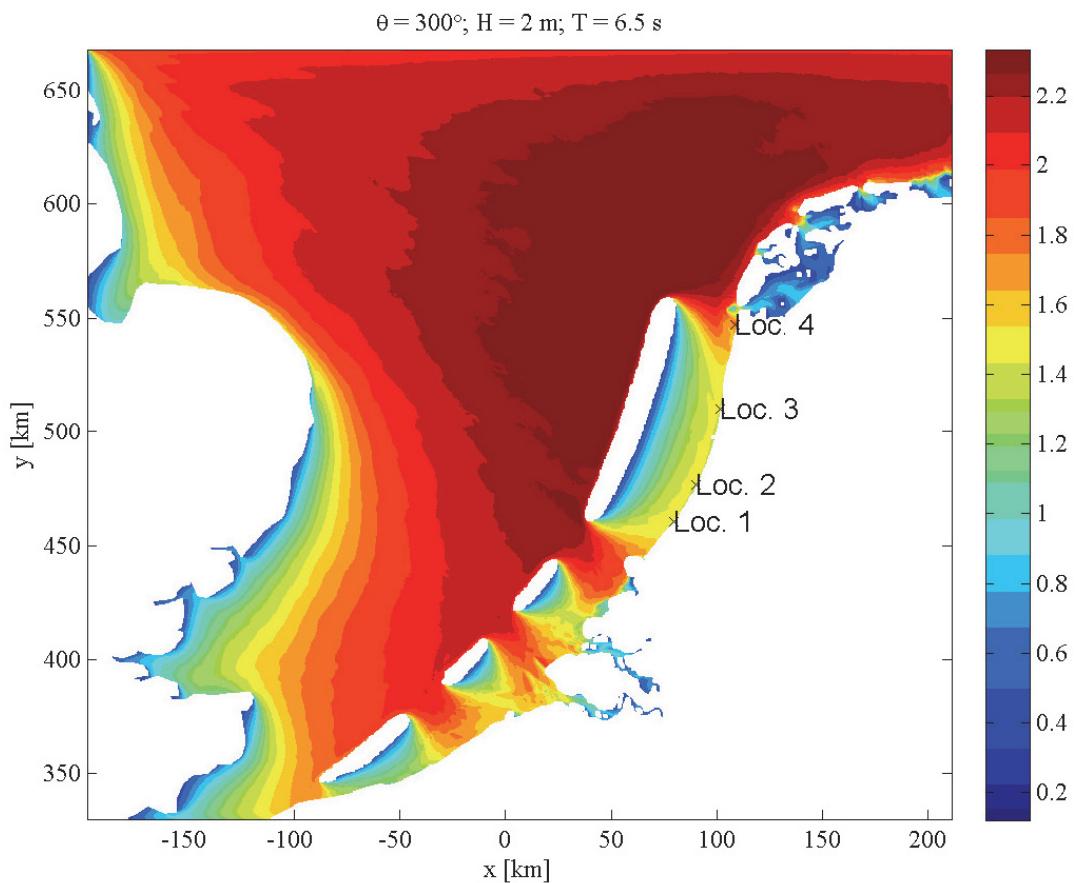
[fig.9 \_Regional-Scale Periodicity - West 8, Happy Islands: Belgium, Dutch and Flemish Coast, 2006-; Magnus Larsson, Dune: Transcontinental Africa, 2008] Along with rural urban dynamics, climate change induced sea-level rise and desertification are examples of dual phenomena. These two strategies represent attempts to address sea-level rise and desertification as polar effects of climate change – to retain currently inhabited regions. An alternate, lowest-risk version of this initiative would be to establish ‘safe zones’ on the basis of those areas of the world least affected by climate change. *Images: (left) West 8 b.v. (right) Magnus Larsson.*

Located beyond the curve of the horizon 10-20 km from shore - and therefore not visible from the existing coast - these dune islands, measuring up to 1,500 km<sup>2</sup>, will break the increasing waves while creating new underwater habitats and respecting current sea transportation routes.



[fig.10: Happy Islands – cut and fill, West 8, 2006-] *Image: West 8 b.v.*

As a further precaution, ingenious engineering of underwater topography causes offshore undertow to draw down the sea level at the existing coast during northwestern storms.



[fig.11: Happy Islands – as storm surge protection, West 8, 2006-] Image: West 8 b.v.

Together with Magnus Larsson's project for artificial linear dunes to stop the accelerated expansion of the Sahara, the project indicates how infrastructural design can employ *contrapuntal thinking* in response to the polar phenomena of climate change: sea-level rise and desertification.

#### vii. Conclusion

In his final year Louis Sullivan (1856-1924) drew an esoteric series of graphic abstractions illustrating 'organic' and 'inorganic' forces, representing natural forces with curved lines and human forces with straight ones, writing: "These two elements...are not to be considered separate conceptions to be harmonized, but as two phases."<sup>320</sup> Again, this periodic concept can be attributed to Pythagoras, who saw the circle as related to the circuits of stars and planets while the square represented the physical world and human rationality, and to his contemporary Heraclitus (535-475 BC), who conceived of the 'unity of opposites' which led to the pedagogical tradition of *coincidentia oppositorum*, in which the coexistence of opposites are understood as creating productive tension. Vitruvius later developed this concept in his architecture, and Da Vinci's 'Vitruvian Man' memorably illustrates the conceptual model

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<sup>320</sup> Louis Henri Sullivan, *A System of Architectural Ornament: According with a Philosophy of Man's Powers*, Facsimile ed. (Park Forest - Ill: Prairie School Press, 1964), 48.

of *dual geometries* and the aspiration to synthesize artistic and scientific knowledge. Taken together, in the tradition of *coincidentia oppositorum*, musical and biological analogies can invigorate and clarify one another — providing a *grammar* of contextual relations to complement the discipline's dedication to the computational-empirical-managerial *lexicon*.

Borrowing the term *autopoiesis* (Greek αὐτό ‘self’, and ποίησις ‘creation’) from the emerging field of chronobiology - which examines periodic phenomena in living organisms and their adaptation to solar and lunar rhythms - Patrick Schumacher concludes volume one of *The Autopoiesis of Architecture* with the following statement:

*...one might talk about an artificial ecology...not only can parameters be shifted out of natural ranges but wholly new, artificial forces and their...laws and logics might be defined...An artificial, second nature can be conjured via scripted, quasi-natural laws, rich in internal resonances, as well as inter-articulations with external contexts.<sup>321</sup>*

This last comment indicates how *contrapuntal thinking* can meaningfully oppose contemporary interpretations of the biological analogy, which curiously enough tend to go along with arguments for self-sufficient cities, the autonomy of architecture, and architectural *autopoiesis* – as though *second nature* could be conceived of as independent from nature itself.

The opposite of *autopoiesis*, a closed process in which context might be an afterthought, is *allopoiesis*: the process whereby an organizationally open system produces something other than itself – as, for example in an assembly line, where each participant contributes a part to a synthetic whole. It is clear that cities are, in reality, *allopoietic* rather than *autopoietic* – they are the cumulative result of the contributions of diverse actors, none of whom are solely in control. This brings us back to Terzidis' distinction between design and planning: until now the arguments for analogical thinking have been made from the standpoint of the designer's conceptualization of urban form and its relationship to context. Turning finally to planning, the analogy of *contrapuntal thinking* – concerning itself with multiple voices and a contextual *cantus firmus* – anticipates the *allopoietic* reality of cities, and lends itself to open planning processes involving inputs from diverse actors. The projects illustrated here also represent sincere efforts in this direction, acknowledging the form of the city as fundamentally open-ended and resulting from an ongoing dialogue among its citizens - often despite resistance from the planning authorities involved. In *The Voice of Liberal Learning*, Michael Oakeshott expresses a sympathetic attitude regarding education itself:

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<sup>321</sup> Schumacher, *The Autopoiesis of Architecture: A New Framework for Architecture*. Vol.1. Chicago: Wiley. p.433., 1:433.

*The pursuit of learning is not a race...it is not even an argument or symposium: it is a conversation. A conversation...has no predetermined course...and we do not judge its excellence by its conclusion; it has no conclusion, it is always put off for another day. Its integration is not superimposed but springs from the quality of the voices which speak, and its value lies in the impressions it leaves behind in the minds of those who participate.*<sup>322</sup>

We often think of the musical analogy as Alberti did – that is, informing architecture. But it is worthwhile to recall – as evidence of the equal and opposite principle – that the word harmony itself is taken from the Greek carpenter’s *harmos*, or ‘joint’, and the implication given it later in Latin, *harmonia*, suggesting not only ‘joining’ but also ‘concord’ – related to *consonare* and *consonant*, meaning ‘sounding together’. Yet here is perhaps the deepest analogy to be drawn from music for architecture.

Cautioning would-be composers against employing a preponderance of perfect consonances, Johann Fux states ‘the variety of proportions produces the most agreeable counterpoint, just as the diversity of flowers produces the most beautiful fields,’ going on to explain:

*The imperfect consonances, then, are more harmonious than perfect ones...Therefore, if a composition of this species, having only two parts and being otherwise very simple, too, should contain very many perfect consonances, it would necessarily be lacking in harmony.*<sup>323</sup>

This desirable ‘variety of proportions’ ought to apply to cities as well as fields and music, and suggests that whatever designs are made, what really counts is how designs accommodate and respond to those who inhabit the city – how they think of it, describe it to one another, and participate in it. To this end the relational nature of analogical thinking goes a long way towards involving the public in design and planning processes. Fux’s proportional heuristic that a maximum of twenty percent of a composition be perfect consonances correlates with the Pareto principle – or the ‘80/20 rule’ – and suggests that, for example, if twenty percent of the urban footprint is maintained for the stable ecological armature of park systems, something approximating Wright’s ‘humane proportion’ of industry and agronomy would result. Just so, as an established, historic alternative to prevalent contemporary notions of urban self-sufficiency, *contrapuntal thinking* provides a promising conceptual framework for the design and planning of rural urban dynamics capable of giving contradictory interests and polemical aims relational, aesthetic formal expression with enduring cultural value.

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<sup>322</sup> Michael Oakeshott, *The Voice of Liberal Learning*, ed. T. Fuller (New Haven: Yale University Press, 1989).

<sup>323</sup> Fux, *Gradus Ad Parnassum*, 28.

## 1.2 **VIA NEGATIVA: Rural Urban Dynamics**

### 1.2.1 Via Negativa - Designing By Absences

*On the benefits of non-action as a basis for ecological design, from the origins of this idea in theology, to its application in art, medicine, finance, and to architecture and landscape. Introducing a low-risk paradigm in which stockpiling gives way to interaction with cycles, and arguing for the provisional use of heuristics as representing the ethos of nonlinearity.*

#### *i. Introduction*

The early Christian use of the Latin term *paganus* – a designation given to perceived antagonists then opposed by Christianity - conveys an explicitly anti-rural attitude, meaning, as it does, a ‘country dweller’ or one ‘not of a city.’<sup>324</sup> Today a variety of commonly used terms, like ‘backwoods’ and ‘hinterlands’ – and related phrases like ‘in the middle of nowhere’ - clearly relegate these territories and their inhabitants to a status inferior to that of city centers and citizens: they are places of absence, invisible and neglected other than for what natural resources they might provide to further urbanization. In popular language one finds very few critical terms referring to urbanites. In English perhaps the strongest of these is ‘city slicker’, ostensibly a critique of pretentious or overly sophisticated behavior - actually something of a backhanded compliment. On the other hand, there are many terms reflecting the disdain of urbanites towards rural inhabitants – ‘bumpkin’, ‘hick’, ‘redneck’ and the like.

Another noteworthy example of this can be found in the Veneto region, whose center is Venice – a region that has historically demonstrated the capacity to cope with boom and bust cycles, ecological as well as economic, and to oscillate between rural and urban emphasis, and back again. Until the early 16<sup>th</sup> Century their preeminence in the mercantile economy, obtained in part by their dominance of shipping routes at sea, the heart of culture and wealth was clearly Venice itself – the great city. Then, when Vasco da Gama piloted a new route for trade, this dominance of sea shipping and trade routes was lost – and the great work at the time of Palladio was to transform regional lowlands into new farmland, building the first polders where Palladio situated his famous villas, which were effectively farming compounds. However creatively and economically successful these agricultural efforts to stabilize the region were initially, over time they lost what prestige they once may have had, and by now if a Venetian wants to refer in a derogatory way to someone they commonly do so by way of maligning their place of origin, saying they are from ‘terra ferma’.<sup>325</sup>

Likely every urban center hosts such implicit attitudes, complicating social and environmental relations between rural and urban communities. Here we will consider a number of examples of how

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<sup>324</sup> Hamed Khosravi, “The Political Theology of the Islamic City,” in *The City As A Project*, ed. Pier Vittorio Aureli (Berlin: Ruby Press, 2013), 73.

<sup>325</sup> Matthew Skjonsberg, “Terra Firma: The Narrative of Soils,” *Testing-Ground: Journal of Landscapes, Cities and Territories*, University of Greenwich, 1, no. 1 (October 9, 2016): 46–53. Note: This regional interpretation was shared by Dr. Elena Cogato-Lanza, a native Venetian.

such tendencies toward *reflexive negation* were harnessed by the theological idea of *via negativa*, and subsequently found constructive, interpretive expression in art, in finance, and finally in architecture and regional design.

### *ii. The Theological Origins of Via Negativa*

As in Venice, Christian Rome developed its own version of urban bias, attracting the ambitious to that religious center of political power. Yet for many the monastic experience remains distinctly rural in character. Such was the case for the Benedictine Trappist monk Thomas Merton (1915-68), who spent the majority of his adult life in relative solitude within monastic environs in rural Kentucky. It was here that Merton came to know and engage with *via negativa* theology, an experience that he described as requiring ‘an ever greater surrender.’<sup>326</sup> This is consistent with theologian Matthew Fox’s recent description of *via negativa*:

*This is the path of letting go and letting be, of solitude and silence, but also of grief and sorrow: it is an ongoing act of radical trust...[Meister] Eckhart calls it ‘sinking eternally into the One’.*<sup>327</sup>

In the theological tradition, *via negativa* has a counterpart – *via positiva* – for which Fox provides the following description, citing Merton himself:

*This is the path of wonder and awe. Or as Merton begins: ‘Our real journey in life is interior: it is a matter of growth, deepening.’ Awe is an inner response, opening to the beauty and wonder of life...*<sup>328</sup>

Like Steven Jay Gould’s admonition to those evolutionary biologists preoccupied with the dynamics of change to pay ‘equally or more’ attention to what stays the same, or a Caravaggio painting that works from a black background and highlights only what is illuminated by light, *via negativa* presents a fundamental inversion of *via positiva*: the recognition that when confronted with something ineffable - like god, or art, or life itself – it is generally best described in a provisional way by what it is not.

*Via negativa* is thus an idea central to an entire branch of spiritual thinking known as *apophatic theology*, a progressive cross-cultural notion common to many spiritual practices - notably including Islam, Christianity and Judaism - as well as finding expression in ancient belief systems like Taoism, Buddhism and Zoroastrianism.<sup>329</sup> Perhaps the most common expression of *via negativa* thinking, shared across religions, is the belief that it is a sin - in the literal sense of ‘missing the mark’ - to attribute a name or image to god. Indeed, *via negativa* was popularized by Christian mystics such as St. Augustine and St. John of the Cross, who believed that every positive quality attributed to god - *via positiva*, such

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<sup>326</sup> Matthew Fox, *A Way To God* (Novato, California: New World Library, 2016), 48.

<sup>327</sup> Fox, 48.

<sup>328</sup> Fox, 48.

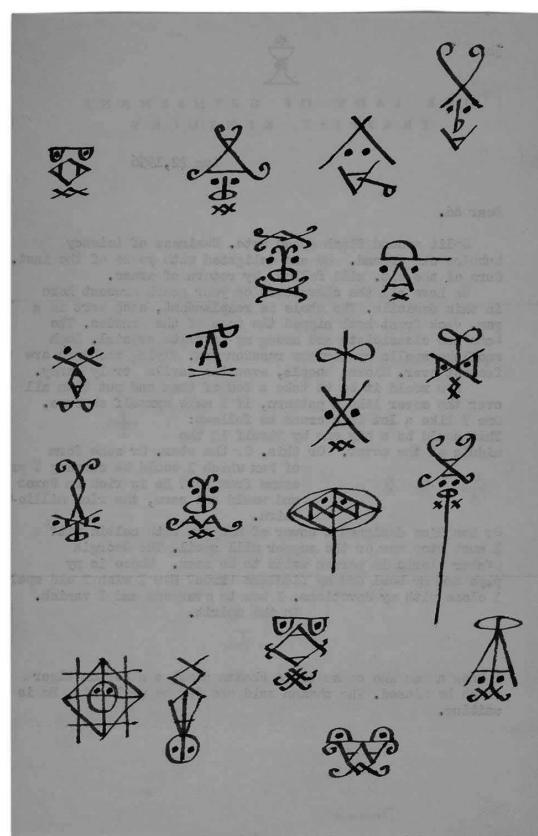
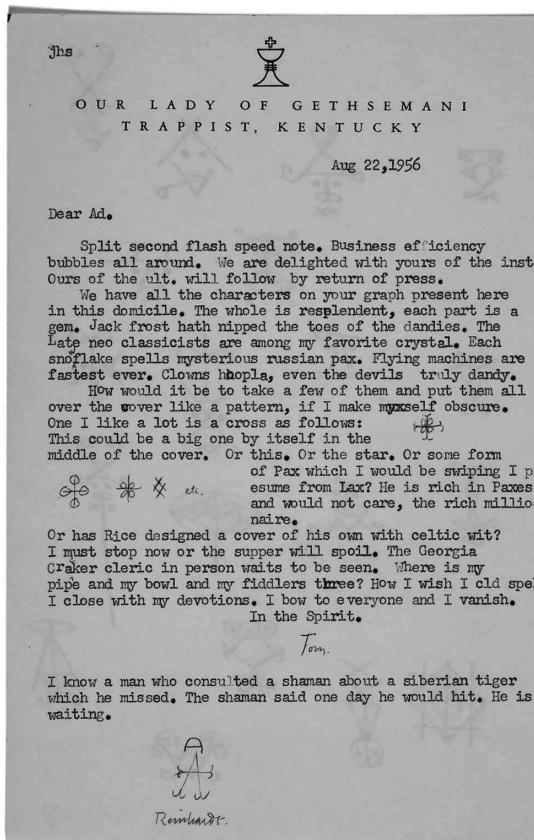
<sup>329</sup> “Apophatic Theology,” *New World Encyclopedia*, n.d., [http://www.newworldencyclopedia.org/entry/Negative\\_Theology\\_\(Apophatic\\_Theology\)](http://www.newworldencyclopedia.org/entry/Negative_Theology_(Apophatic_Theology)).

as a characterization of god as loving, wise and good - must always be tempered by the recognition that human language is inadequate to describe the ineffable.

Nevertheless, the relevance of *via negativa* goes well beyond religious speculation, as is evidenced by philosopher Jacques Derrida's own more recent affinities with St. Augustine and *via negativa*.<sup>330</sup> Because of its broadly inclusive, normative, and generalizing tendencies, *via negativa*-type thinking can have profound implications for any discipline.

### *iii. Art as Art*

Having met in 1935 at Columbia University while working for the *Jester*, the school's humor magazine, the monk Thomas Merton (1915 – 1968) and the artist Ad Reinhardt (1913 – 1967) became lifelong friends. Merton later wrote, "Ad Reinhardt was certainly the best artist that had ever drawn for *Jester*, perhaps for any college magazine."<sup>331</sup> When Merton entered monastic life he was restricted to writing and receiving four letters a year, yet with these letters he maintained a remarkable correspondence with Reinhardt. Their letters are filled with puns, portmanteaus, and typos, and their mutual love and humor is evident.



[fig1\_Merton letter, Aug.22, 1956] Reindardt Archives [fig2\_ Reinhardt diagrams, verso]

<sup>330</sup> See also: Noah Adrien Lyons, "Augustine and Derrida: Negative Theology and the Im/Possibility of God," ed. Prof. Anselm Ramelow (Graduate Theological Union, 2012).

<sup>331</sup> Thomas Merton, *The Seven Storey Mountain* (Houghton Mifflin Harcourt, 1998), 170.

In a letter dated October 29, 1957, responding to Reinhardt's offer of a 'small painting', Merton toys with reflexive negation – invoking the historic controversy of his own institution, referring to the destruction of images and the church's historic hostility toward visual representation – playfully inventing an *iconoclastic* polemic of small paintings:

*Do I want a small painting? You inquire if I want a small painting. You wish to know: do I desire a small painting.*

*Do I desire a small painting? Well, it is clear at least to me that I desire a small painting since I am in point of fact crazy mad for a small painting. They have to keep me chained to the wall day and night and a gag in my mouth because I roar continuously that I am dying for a lack of a small painting. I have already started on a campaign of actively destroying every large painting that I can lay my hands on because I am totally consecrated in life and death to the cause of small paintings, for this reason that I am consumed by an ardent thirst for a small painting.<sup>332</sup>*

Another letter includes a poem he wrote, a reflection on his friend's idea of 'art-as-art' titled "d'après AD/REIN/HARDT," written in a single central vertical column, one word to a line, and concluding with a textbook misinterpretation of *via negativa* – reflexively overstating its purpose in the absence of its counterpart, *via positiva*:

the  
one  
way  
to  
say  
what  
art –  
art  
is  
is  
to  
say  
what  
it  
is  
not.<sup>333</sup>

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<sup>332</sup> Roger Lipsey, "Do I Want a Small Painting? The Correspondence of Thomas Merton and Ad Reinhardt," *Thomas Merton Annual* 18 (2005): 272.

<sup>333</sup> "Ad Reinhardt Archives" (Archives of American Art, n.d.), n. The Archives of American Art has microfilm of all letters attributed to that collection. The originals remain with the Reinhardt family.

Over the ensuing years, these letters show that the shared artistic and spiritual philosophy of these friends grew ever closer, even as they sharpened and challenged one another's thinking. In a letter dated March 3, 1962, Merton writes to Reinhardt in a vein that echoes his earlier, more playful advocacy of his friend's work – which Reinhardt himself described as 'too serious to be taken seriously' – but is both more reactionary and more radical:

*You are non-objectivist and you are right. Down with object. Down with damn subject. Down with matter and form.*<sup>334</sup>

Following Reinhardt's death, as though to bring closure to their own friendly-yet-serious polemic, Merton reprinted the following statement of his friend in the first issue of his poetry magazine, *Monk's Pond*, in which Reinhardt stated his own artistic objectives - holistically alternating from describing what art is, *via positiva*, to describing what it is not, *via negativa*:

*The one work for a fine artist, the one painting, is the painting of the one-size canvas—the single scheme, one formal device, one color-monochrome, one linear division in each direction, one symmetry, one texture, one free-hand-brushing, one rhythm, one working everything into one dissolution and one indivisibility, each painting into one overall uniformity and non-irregularity. No lines or imaginings, no shapes or composings or representings, no visions or sensations or impulses, no symbols or signs or impastos, no decoratings or colorings or picturings, no pleasures or pains, no accidents or ready-mades, no things, no ideas, no relations, no attributes, no qualities—nothing that is not of the essence. Everything into irreducibility, unreproducibility, imperceptibility. Nothing “usable,” “manipulatable,” “salable,” “dealable,” “collectible,” “graspable.” No art as a commodity or a jobbery. Art is not the spiritual side of business.*<sup>335</sup>

While his *via positiva* description emphasizes the artist's aspiration toward unity, Reinhardt's emphatic negations vividly illustrate his own interpretation, in art, of Merton's theological *via negativa*. Both friends understood god and art as ineffable, beyond our descriptive capacities, and believed that the only way of describing god and art is by saying what they are not. Reinhardt's closing qualification – that art is not 'the spiritual side of business' – makes clear that he intends to address values other than economic ones. Throughout his career Reinhardt refused to participate in the art market, despite the prominence he could easily command in it, and was characteristically self-disciplined about it: he refused to sell his work, instead donating it to institutions with progressive social policies, and supported himself by teaching.

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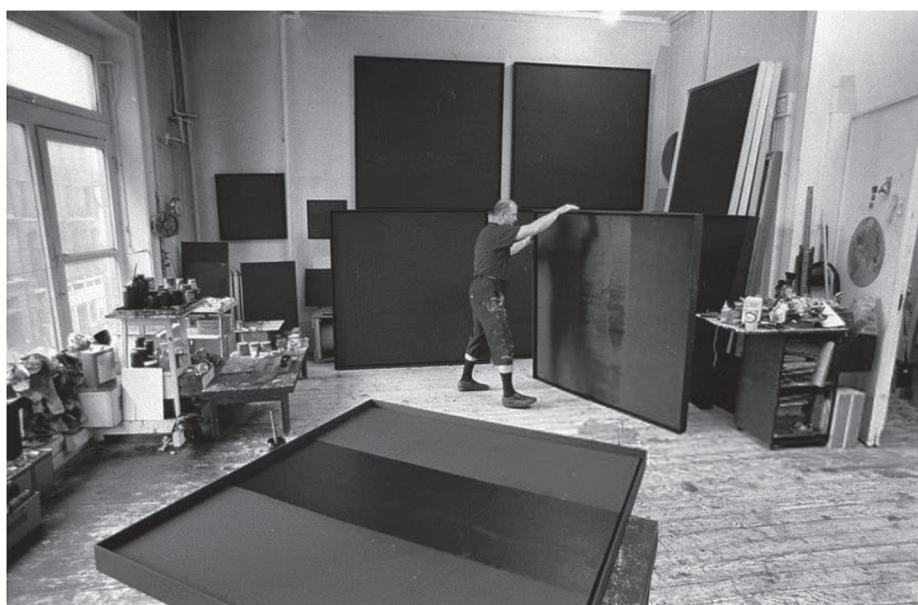
<sup>334</sup> Lipsey, "Do I Want a Small Painting? The Correspondence of Thomas Merton and Ad Reinhardt," 284.

<sup>335</sup> Ad Reinhardt, *Art as Art: The Selected Writings of Ad Reinhardt* (University of California Press, 1991), 56; as cited in Robert Tubbs, *Mathematics in Twentieth-Century Literature and Art: Content, Form, Meaning* (JHU Press, 2014), 31.



[fig.3\_Ad Reinhardt et alia, Artists's sessions at Studio 35, April 1949] Left to right: Seymour Lipton, Norman Lewis, Jimmy Ernst, Peter Grippe, Adolf Gottlieb, Hans Hofmann, Alfred Barr, Robert Motherwell, Richard Lippold, Willem de Kooning, Ibram Lassaw, James Brooks, Ad Reinhardt, Richard Poussette-Dart. Courtesy the Ad Reinhardt Foundation.

Even more radical were his trademark black-on-black paintings – made so as to be experienced first-hand, and effectively impossible to reproduce photographically. Skeptical of the commodification of art, and critical of institutional biases, Merton and Reinhardt championed another value system altogether – a cultural value system involving both solitude and community life, spiritual discipline and artistic practices – explicitly based on *via negativa* thinking.



[fig.4\_Reinhardt studio] Image: John Leogron for Time Magazine, copyright 1966.

#### *iv. First Do No Harm*

The regard with which science is currently held in our society is, I have argued elsewhere, analogous to that in which the church was held historically – the doctor has both the admiration and suspicion once saved for the priest.<sup>336</sup> It is a credit to the reputation of the discipline that it is often believed the phrase "First do no harm" (Latin: *Primum non nocere*) is the opening statement of the Hippocratic oath – an oath historically taken by physicians to maintain certain specific ethical standards. In fact, the phrase does not appear in the oath, as such – but the idea that it does has taken hold in the popular imagination. Perhaps it is because it is comforting to think that the physician's first act is to deploy this precautionary principle.<sup>337</sup>

The phrase 'first do no harm' provides another good example of a heuristic – a provisional rule, often expressed as an aphorism – concise, memorable, and expressive of a principle that remains, if not unchanging, enduring. It is in this sense that the contemporary quantitative mathematician Nicholas Nassim Taleb employs the notion of *via negativa* itself as such a heuristic, reflecting that he was prompted to use *via negativa* heuristically because of an argument he once had with a petrochemical engineer, whose vested interest in the matter was only too clear:

*The petrochemical engineer was saying that we had no evidence that fossil fuels caused harm to the planet, turning his point semantically into something equivalent in decision making to the statement that that we had evidence that fossil fuels did not harm...I [however, argued that] we are doing something new to the planet, that the burden of evidence is on those who disturb natural systems...Then a heuristic came to mind...when general statements about the collective welfare are made...absence of investment is what is required. Via negativa.*<sup>338</sup>

Elaborating on this realization, he then relates it to concerns about vested interests with an insightful critique of contemporary medical practice and pharmaceutical industries:

*One should give more weight to witnesses and opinions when they present the opposite of a conflict of interest. A pharmacist or an executive of Big Pharma who advocates starvation and via negativa methods to cure diabetes would be more credible than another one who favors the ingestion of drugs.*<sup>339</sup>

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<sup>336</sup> Matthew Skjonsberg, "Magic, Inc.," in *The Aesthetics of Sustainable Architecture*, ed. Sang Lee (Rotterdam: 010, 2011), 227–42.

<sup>337</sup> Daniel K. Sokol, "'First Do No Harm' Revisited," *BMJ* 347 (October 25, 2013): f6426. Note: Although the oath does contain Latin: ... *noxamvero et maleficium propulsabo* (Also ... I will utterly reject harm and mischief). The phrase "*primum non nocere*" is believed to date from the 17th century. Another equivalent phrase is found in Epidemics, Book I, of the Hippocratic school: "Practice two things in your dealings with disease: either help or do not harm the patient".

<sup>338</sup> Nassim Nicholas Taleb, *Antifragile: How to Live in a World We Don't Understand* (London: Allen Lane, 2012), 415.

<sup>339</sup> Taleb, 416.

The timely relevance of *via negativa* becomes increasingly evident as Taleb reflects on the contemporary research paradigm and the role of computation and ‘big data’:

*The fooled-by-data effect is accelerating. There is a nasty phenomenon called “Big Data” in which researchers have brought cherry-picking to an industrial level. Modernity provides too many variables (but too little data per variable), and the spurious relationships grow much, much faster than real information, as noise is convex and information is concave. Increasingly, data can only truly deliver via negativa-style knowledge—it can be effectively used to debunk, not confirm...So we are crippled with a distrust of empirical results, except for those that are negative.*<sup>340</sup>

Taleb concludes that his heuristic use of *via negativa* is as a precautionary principle directly in line with the optimism conveyed by ‘first do no harm’ – the myth of medicine’s integrity – now applied not only to medicine, but also to the vested interests surreptitiously capitalizing on public interests in every industry:

*All I want is to remove the optionality, reduce the antifragility of some at the expense of others. It is simple via negativa. The rest will take care of itself.*<sup>341</sup>

Here we encounter two more terms Taleb uses with quite specific intent. *Optionality* is a financial term designating an investor’s range of options based on investments made, and has to do with the mobility of one’s assets. *Antifragility* is a term Taleb invented to describe something that increases value and stability when treated roughly. Taleb is saying that he intends to employ *via negativa* as a precautionary principle in the same spirit as ‘first do no harm’, removing the *optionality* and reducing the *antifragility* of insider investors so as to attribute those benefits to the public generally.

Taleb refers to the historic precedent of Hammurabi’s rule, now known to be over 3800 years old, as already having identified the need for ‘a symmetry of fragility’, citing the following passage from this earliest known written law:

*If a builder builds a house and the house collapses and causes the death of the owner of the house—the builder shall be put to death. If it causes the death of the son of the owner of the house, a son of that builder shall be put to death. If it causes the death of a slave of the owner of the house—he shall give to the owner of the house a slave of equal value.*<sup>342</sup>

For Taleb, the ‘symmetry of fragility’ means that the responsible party to an act is also held accountable for the act. Objecting to the lack of such accountability in the current regulatory system, he describes various instances of insider advantage in the finance industry.

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<sup>340</sup> Taleb, 418.

<sup>341</sup> Taleb, 420.

<sup>342</sup> Taleb, 381.



**[fig.5\_Hammurabi's Code]** The Code of Hammurabi is one of the oldest deciphered writings of significant length in the world, documenting in 282 laws – interpreting the principle expressed by the heuristic-like ‘an eye for an eye, a tooth for a tooth’ (*lex talonis*) as determined by social status, slave or free person – the Babylonian code of ancient

He explains the tax code, for example, revealing how the super-rich cheat the taxpaying public by getting free government-sponsored insurance – legally, and with the help of former civil servants who have an insider’s advantage. Taleb relates that when he learned of this he spontaneously asked: “Isn’t this unethical?”

*I was then told in response “It is perfectly legal,” adding the even more incriminating “we have plenty of former regulators on the staff,” (a) implying that what was legal was ethical and (b) asserting that former regulators have an edge over citizens.<sup>343</sup>*

This interaction eventually led Taleb to make the following observations about the usefulness of employing *via negativa* as a financial heuristic generally, and specifically as the principled basis for sound financial regulatory policy:

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<sup>343</sup>Taleb, 413.

*First, the more complicated the regulation, the more prone to arbitrages by insiders. This is another argument in favor of heuristics. Twenty-three hundred pages of regulation—something I can replace with Hammurabi's rule—will be a gold mine for former regulators. The incentive of a regulator is to have complex regulation.*

*Second, the difference between the letter and the spirit of regulation is harder to detect in a complex system. The point is technical, but complex environments with nonlinearities are easier to game than linear ones with a small number of variables. The same applies to the gap between the legal and the ethical.*

*Third, in African countries, government officials get explicit bribes. In the United States they have the implicit, never mentioned, promise to go work for a bank at a later date with a sinecure offering, say \$5 million a year, if they are seen favorably by the industry. And the “regulations” of such activities are easily skirted.<sup>344</sup>*

The insights expressed by Taleb in these three critical observations - his emphasis on the ethical desirability of regulatory transparency and simplicity, his explicit acknowledgement of ‘complex environments with nonlinearities’ where insiders have the advantage, and his cross-cultural equivocation of institutional corruption – make a compelling case for the heuristic use of *via negativa*. But it is not a stand-alone idea, and Taleb suggests reinforcing it with another, related principle, extending its application:

*The second heuristic is that we need to build redundancy, a margin of safety, avoiding optimization, mitigating (even removing) asymmetries in our sensitivity to risk.<sup>345</sup>*

While Taleb describes this as a second heuristic, it follows so naturally from *via negativa* that it seems to me to be simply another expression of that principle. In formulating his thought, Taleb makes use of another related expression of *via negativa* – adopting Mies van Der Rohe’s design principle of ‘less-is-more’ into a financial heuristic he calls ‘the less-is-more rule’, writing, “Again, the insiders are the enemies of the less-is-more rule.”<sup>346</sup> Between related ideas like *via negativa* and *less-is-more, redundancy* and *optionality*, Taleb effectively establishes a set of heuristics as guides for decision making to which we will return intermittently.

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<sup>344</sup> Taleb, 413.

<sup>345</sup> Taleb, 397.

<sup>346</sup> Taleb, 413.

#### *v. Via Negativa in Architecture*

The heuristic approach correlates closely with architectural tradition, including Louis Sullivan's famous design dictum 'form follows function' – to which his student Frank Lloyd Wright responded with a *via negativa* qualification, arguing that 'the only safe tradition is a principle in action.' Having tested this idea that 'form follows function' Wright sensed that this was not quite right – it was not a one-way dependency of form on function, but rather a reciprocal influence that Wright felt was more truthfully expressed by the statement, 'form and function are one' – a statement that stands as his provisional expression of the *via positiva*.

Wright similarly qualified Mies van der Rohe's minimalist ideal of 'less-is-more' with the reflexively *via negativa*-like 'less is more only when more is too much'. His ideal is that of abundance, as Wright himself made clear when characterizing his own objectives in architecture at the end of his life, reflecting on his lifetime of work in the opening statement of *A Testament* (1957) as an expression of complementary but opposing interests – the poet and the engineer – and addressing, once again, his admiration for the thought of his hero William Blake:

*So the poet in the engineer and the engineer in the poet and both in the architect may be seen here working together, lifelong. William Blake - poet - has said "exuberance is Beauty."*

Wright goes on to describe that it took him a long time to know just what 'the great Blake' meant, and explains that the lesson is now particularly 'valuable to the creative architect...in this poetry-crushing, transitory era of the Machine':

*Blake meant that Beauty always is the consequence of utter fullness of nature in expression: expression intrinsic. Excess never to be mistaken for exuberance; excess being always vulgar. He who knows the difference between excess and exuberance is aware of the nature of the poetic principle...The more a horse is Horse, a bird Bird, the more a man is Man, a woman Woman, the better? The more a design is creative revelation of intrinsic nature, whatever the medium or form of expression, the better. "Creative," then, implies exuberance. It is not only true expression but true interpretation, as a whole, of the significance, truth and force of Nature, raised to the fullest power by the poet. That design revealing truth of inner being most abundantly is best design.<sup>347</sup>*

Wright's development of this entire line of thought is perfectly consistent with his early qualifying reflection that 'form and function are one'. This final articulation, at the end of his life – of the complementary oppositions of form and function, of poet and engineer, and his ideal of design as the

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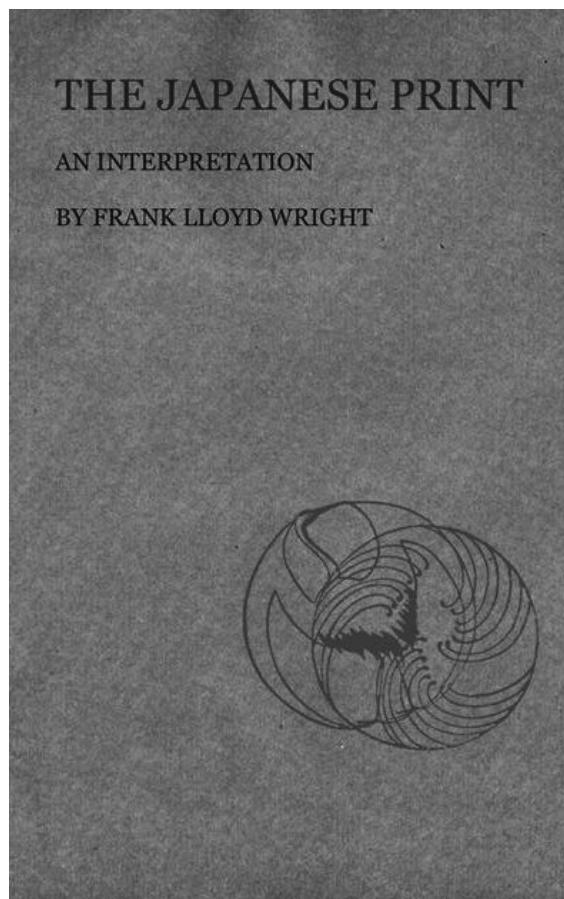
<sup>347</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 5:157–58.

'revelation of intrinsic nature' expressive of Blake's 'exuberance is beauty' – is powerfully suggestive, providing an optimistic *via positiva* coda to his life statement.

Just so, on the *via negativa* side one finds numerous statements about the importance of designing by absences made by Wright throughout his life that are equally insightful and remarkably concise. One of these appears in an appreciation he wrote of Japanese prints in 1912:

*Broadly stated then, the first and supreme principle of Japanese aesthetics consists in stringent simplification by elimination of the insignificant and a consequent emphasis of reality...The Japanese, by means of this process...by this habit of study...is a poet...This process of elimination of the insignificant we find to be the first and most important consideration for artists...<sup>348</sup>*

By then Wright had over twenty years of intimate familiarity with such *ukiyo-e* prints, having become an early collector of prints by such exemplary *ukiyo-e* artists as Hiroshige, Hokusai, Sharaku, and Utamaro.



[fig.6\_Frank Lloyd Wright, *The Japanese Print* (1912)] Image: The Frank Lloyd Wright Foundation Archives at The Museum of Modern Art | Avery Architectural & Fine Arts Library, Columbia University, New York

<sup>348</sup> Frank Lloyd Wright, *The Japanese Print: An Interpretation* (Chicago: Ralph Fletcher Seymour, 1912). Reprinted in Wright, *Frank Lloyd Wright*, 1992, 1:119.



[fig.7\_Hokusai and Toyoharu] (above) Katsushika Hokusai, Fuji from Honganji Temple in Asakusa, Edo, 1831-1833; Utatagawa Toyoharu, Interior of Shoin Style Architecture with Dancers Performing Horse Dance, c. 1770, Collection of the UCLA Grunwald Center for the Graphic Arts, Hammer Museum. Purchased from the Frank Lloyd Wright Collection.

In later years he made a special point of introducing the study of Japanese prints to his apprentices at the Taliesin Fellowship, and each autumn he would host a ‘print party,’ begun with a Japanese dinner cooked on several small hibachi stoves he had brought from one of his visits. At one of the last of these events he addressed the powerful impact the Japanese print’s had made on him:

*I have never confided to you the extent to which the Japanese print as such has inspired me. I never got over my first experience with it and I shall never probably recover. I hope I shan’t. It was the great gospel of simplification and that came over me, the elimination of all that was insignificant.<sup>349</sup>*

This may have been the only time Wright spoke so explicitly about the origin of his inspiration, but these apprentices had long since become intimately familiar with the principles of this ‘gospel of simplification’ in their daily life. The apprentices were encouraged to eliminate unnecessary complexity from their daily actions, as from their architectural designs, integrating function with form when possible – while reflexively allowing space for the opposite tendency, ‘integrally expressive exuberance’, bearing in mind that ‘less is more only when more is too much,’ and from this fruitful tension working out their own interpretation of these principles.

They also worked in the landscape at Taliesin to bury unsightly power lines, remove glaring streetlamps, and to fill dangerous ditches - such as had been responsible for the death of Wright’s daughter and her young son in 1946.



[fig.8\_Taliesin valley] *Image: the author*

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<sup>349</sup> Frank Lloyd Wright, address to the Taliesin Fellowship, June 20, 1954. Published in Wright, *Frank Lloyd Wright*, 1987.

We will return to this subject in the final section (*2\_Civic Design*), where I argue that this project for Wright's ancestral Lloyd Jones family valley – called by many in the community the 'Valley of the God Almighty Joneses' – was the closest he came to realizing his proposals for Broadacre City. Indeed, among the panels first exhibited with the Broadacre City models at Rockefeller Center in 1935 was a *via negativa*-style compendium of 'no's', including those acts of negation mentioned above, and titled 'Living in America':

NO PRIVATE OWNERSHIP OF PUBLIC NEEDS  
NO LANDLORD AND TENANT  
NO "HOUSING" – NO "SUBSISTENCE HOMESTEADS"  
NO TRAFFIC PROBLEM – NO BACK AND FORTH HAUL  
NO RAILROADS – NO STREETCARS  
NO GRADE CROSSINGS  
NO POLES – NO WIRES IN SIGHT  
NO DITCHES ALONGSIDE THE ROADS  
NO HEADLIGHTS – NO LIGHT FIXTURES  
NO GLARING CEMENT ROADS OR WALKS  
NO TALL BUILDINGS EXCEPT AS ISOLATED IN PARKS  
NO ROADSIDE ADVERTISING  
NO SLUM – NO SCUM  
NO PUBLIC OWNERSHIP OF PRIVATE NEEDS

It is telling that Wright begins the list with excluding 'private ownership of public needs' and ends excluding 'public ownership of private needs' - again, it seems clear that even while deliberately instigating a polemic he is seeking the fruitful, reciprocal tension between complementary opposites. As with our identification of *via negativa*'s counterpart *via positiva*, it follows that each of the heuristics we derive will have its reflexive and complementary opposite. Just so, on other panels accompanying these, affirmative statements like 'Architectural Features Determined by the Character and Topography of the Region,' and 'Out of the Ground and Into the Light,' have their counterparts in further negations like 'No Realtors Except the State' and 'The Future is Everywhere or Nowhere.' As Wright had earlier written in *The Disappearing City*, "the negation is good medicine."<sup>350</sup>

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<sup>350</sup> Wright, *The Disappearing City*, n. As published in Collected Writings, vol.3 p.97.

*vi. The Negation That Is Affirmation*<sup>351</sup>

Wright's negations echo earlier calls for greater social justice by *via negativa* methods, like those of Canon Barnett – founder of the Toynbee Hall settlement house in the east end of London, and mentor to Wright's friends Jane Addams and Charles Robert Ashbee, among others - who in 1893 had written a treatise titled *The Ideal City*, where he writes of co-present and complementary oppositions – new and old, sea and hills – whose mutual vitality is supported by a number of absences:

*Gone are now the close alleys in which men and women die before their time. Gone are the houses in which families swarm, and foster a pestilence. Gone are the smells, the filth, and the danger. Gone are the old school houses with their babel of sounds from classes all taught in one room. Gone are the cemeteries, which under the quiet shelter of their trees hide the seeds of terrible scourges. Gone are the workhouses, with their stone-breaking and their deterrent systems. Gone are the prisons, with their vindictive and hope-killing punishments. Gone are the slaughter-houses, with their ugly and demoralizing sights.*<sup>352</sup>

Likewise, Barnett's positive description also anticipates similar statements only made by Wright years later:

*Its streets will be broad and lighted with electric light... Its spaces will be many; great open spaces for games; small open spaces, within the reach of every house, for the rest of the week. Its buildings will be of many styles, expressive of the character of their uses...*<sup>353</sup>

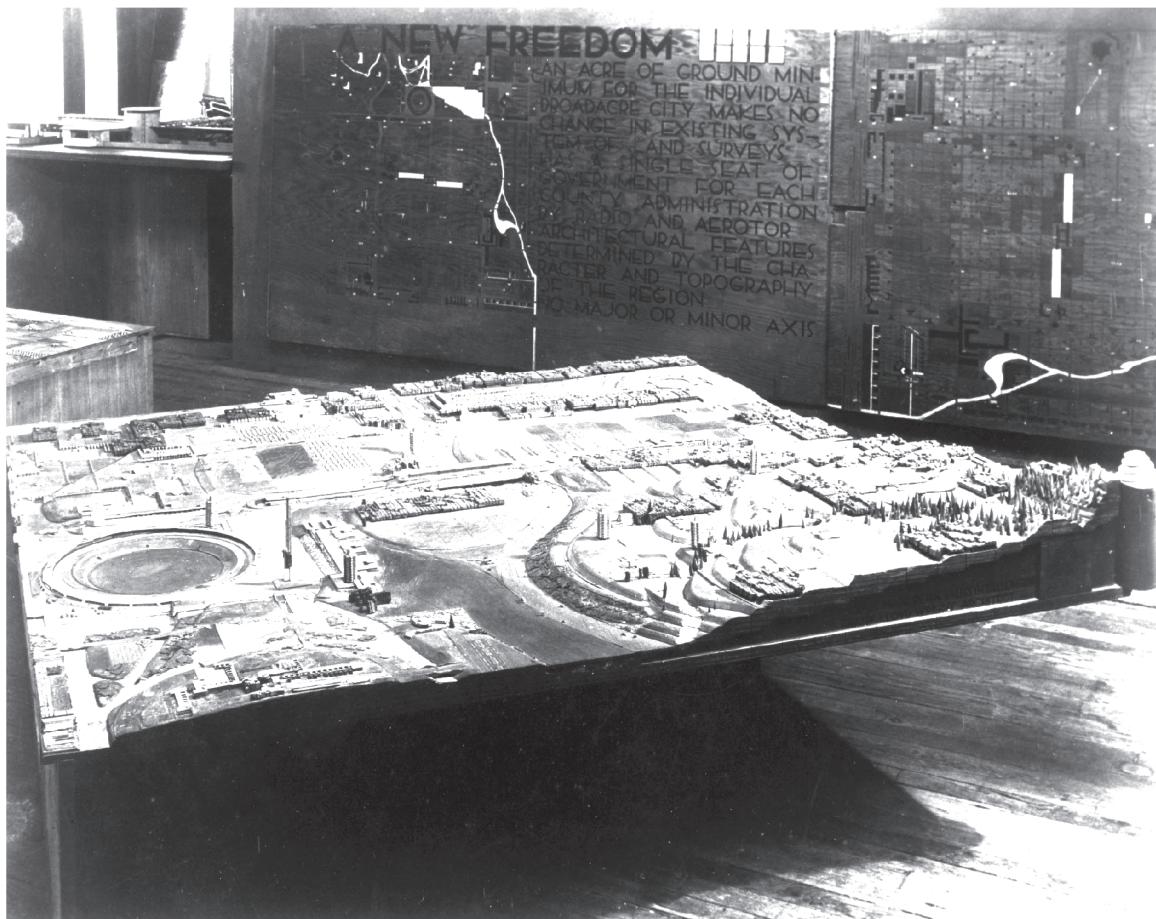
Canon Barnett's independent description of his Ideal City's 'broad streets' and buildings 'expressive of the character of their uses' suggests, if it does not confirm, that by working between *via negativa* and *via positiva* we really are dealing with a design tradition that is safe, according to Wright's qualification of tradition, as an expression of a principle-in-action.

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<sup>351</sup> Wright, n. As published in Collected Writings, vol.3 p.97.

<sup>352</sup> Canon Barnett and Patrick Geddes, *The Ideal City; Civics: An Applied Sociology*, The Victorian Library (Leicester: University Press, 1979), 57.

<sup>353</sup> Barnett and Geddes, 57.



[fig.9\_Broadacre City, model and panels (1934-5)] FLLW 3402.036

#### vii. Conclusion

Five years after first exhibiting the Broadacre City list of negations, Wright published an amended version of the list adding several other things he'd suggest eliminating, including 'No Policemen; No Minor Axis - No Major Axis; No Yards For Raw Materials.'<sup>354</sup> Each of these further qualifications prove prescient – police and geometry will be addressed in *2\_Civic Design* – but none more so than the last of these. In targeting the stockpiling of materials in railyards, Wright touches on the subject of *via negativa* as a critical re-evaluation of industrial material cycles.

The most powerful example I know of the *via negativa* heuristic addresses this subject head on, and can be found in the ‘regeneration guidelines’ proposed by Wolfgang Sachs, et al, in *Greening the North - A Post-Industrial Blueprint for Ecology and Equity* (1997): “No more of a renewable resource should be utilized than can regenerate in the same period. Only that amount of materials should be released into the environment as can be absorbed there.”<sup>355</sup> In other words, there is to be no stockpiling, either

<sup>354</sup> Taliesin Fellowship, “Broadacre City: The New Frontier,” ed. Frank Lloyd Wright, *Taliesin* 1, no. 1 (October 10, 1940).

<sup>355</sup> Wolfgang Sachs and et al, *Greening the North: A Post-Industrial Blueprint for Ecology and Equity*, 1 edition (London: Zed Books, 1998), 13.

of ‘resources’ nor of ‘waste’ – both of which are now regarded as phases that are part of complete material cycles. These principles are effectively summarized in another of their heuristics, addressing our theme of *periodicity*:

*The time-factor in human intervention should be in balance with that of natural processes: the decomposition of waste or the regeneration rates of renewable raw materials and eco-systems.*<sup>356</sup>

Having observed that insurance companies tend to assess risk in such a way as to benefit disproportionately by it, the authors provide a heuristic for ‘throughput guidelines’ that is similarly concise: “Throughputs of energy and materials must be reduced to a low-risk level.”<sup>357</sup>

This low-risk paradigm is exactly where Nicholas Nassim Taleb would like for *via negativa* thinking to take us – I argue that this heuristic is particularly effective when interpreted at the scale of the region. As it happens, Taleb cited St. Augustine as having introduced him to *via negativa* thinking. Regional designer and landscape architect Philip H. Lewis, Jr. also cites St. Augustine when describing his *via negativa*-like 9 step process to determine ‘where-not-to-build’ – which he argues is the primary objective of ecology in relation to the other disciplines, an assertion which we will soon consider closely. But while we can be quite certain Taleb and Lewis never read one another’s work, the clarity of the common origins of their thinking is evidenced by the fact that Taleb’s analogical statement of purpose could be taken for the literal statement of the regional designer:

*What I propose is a road map to modify our man-made systems to let the simple—and natural—take their course...Heuristics are simplified rules of thumb that make things simple and easy to implement. But their main advantage is that the user knows that they are not perfect, just expedient, and is therefore less fooled by their powers. They become dangerous when we forget that.*<sup>358</sup>

Toward the end of his long career Lewis taught at Taliesin, where he further developed his 9-step ‘where-not-to-build’ heuristic method as an extension of Wright’s interpretive *via negativa* effort to ‘eliminate the insignificant’ – and Wright’s *via positiva* ideal of design as ‘integral expression’ was advanced by Lewis’s systematic work to make evident those existing qualities of the landscape that had previously been hidden or obscured by such. Before entering into the solutions brought by Lewis and the others, to which we will return in 1.2.4\_Where Not To Build, let’s consider the underlying issue that prompted their efforts – namely systematic ecological destruction.

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<sup>356</sup> Sachs and et al, 13.

<sup>357</sup> Sachs and et al, 13.

<sup>358</sup> Taleb, *Antifragile*, 11.

### 1.2.2 Utopia - The Evolutionary Nature of Genius Loci

*As an alternative to hinterlands – and inclusive of both rural and urban – the notion of utopia is addressed in historical context as providing the possibility of regional synthesis. Considering the historic uses of the term *genius* as it pertains to the term *genius loci*, and arguing that conservation is the first expression of *genius loci*.*

#### *i. Introduction*

This section considers several practical interpretations of the general idea of ‘utopia’ as it relates to the site-specific legacy of ‘genius loci’. We begin by considering genius along the lines of the most commonly understood, conventional sense of the term – as someone of extraordinary ability, capability, and influence. Then we will consider *genius* in the sense of *ingenuity* – the genius of the *idea* of utopia – in that Thomas More’s ‘invention’ of the term *utopia* in 1516 gave subsequent generations a name for an effective way to conceptualize, communicate, and give form to future aspirations. This leads us to the site-specific implications of *genius loci*, demonstrating that Geddes’s implicitly *ecological* notion of ‘utopia’ was fundamentally evolutionary – and explicitly temporal – and that it was informed by his active interest in cultivating the desirable qualities *already present* in existing cities. Finally, we arrive at Geddes’s emphasis on ‘conservative surgery’ as an integral part of utopian ‘genius loci’. Seen through the ‘frankly *utopian*’ lens of Patrick Geddes’s regional survey methods – encompassing both his pragmatic involvement with existing cities and his regional ambitions – illustrating a synoptic vision of region and context quite the opposite of that seen in the myopic urban notion of hinterland.

#### *ii. The Legacy of Genius*

When we hear the word ‘genius’, our tendency is to associate it with the great names of scientific history – Archimedes, Pythagoras, Newton, Darwin, Einstein – so it follows that a positive recommendation from one of these for another would also merit thoughtful consideration. As it happens, the young Patrick Geddes’s work as a botanist attracted the attention of Charles Darwin himself, who wrote Geddes an unsolicited letter of praise:

*Dear Sir –*

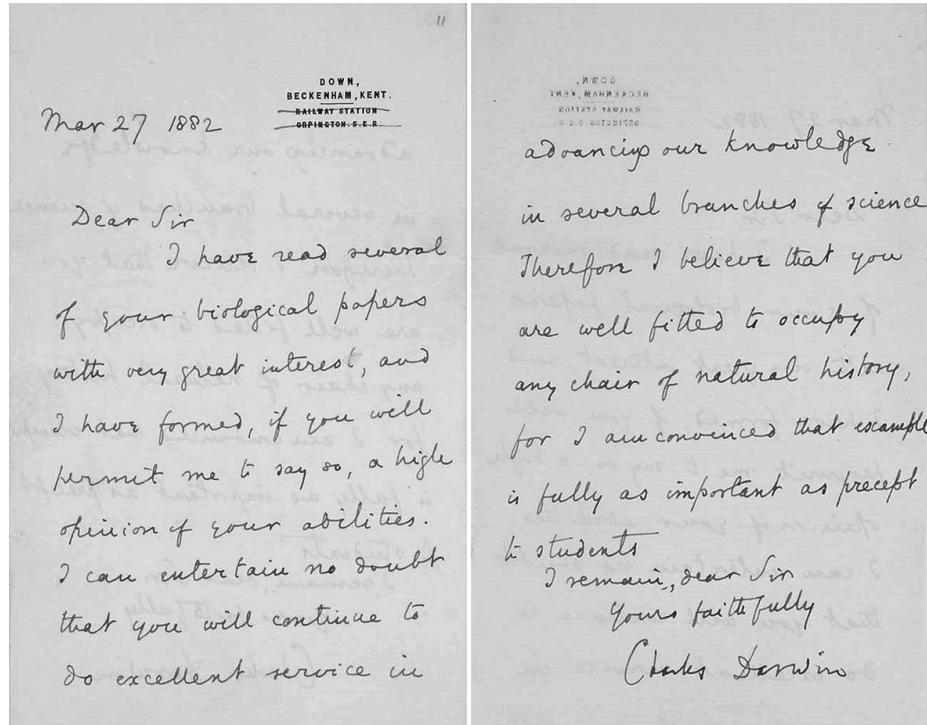
*I have read several of your biological papers with very great interest, and I have formed, if you will permit me to say so, a high opinion of your abilities. I can entertain no doubt that you will continue to do excellent service in advancing our knowledge in several branches of science. Therefore I believe that you are well fitted to occupy any chair of natural history, for I am convinced that example is fully as important as precept to students.*

*I remain, dear Sir, yours faithfully,*

*Charles Darwin<sup>359</sup>*

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<sup>359</sup> Charles Darwin, “Letter to Patrick Geddes” (unpublished, March 27, 1882), National Library of Scotland.



[fig.1\_ Charles Darwin's letter to Patrick Geddes]

Previously unpublished, March 27, 1882. Image courtesy of the National Library of Scotland.

Clearly Patrick Geddes was a remarkable person – but was he a genius? How is one to introduce or evaluate Geddes? This is a question that has been wrestled with by his biographers,<sup>360</sup> as Alessandra Ponte has written in the exemplary affirmative:

*How does one describe a genius who wanted to be universal? ...Patrick Geddes was a biologist, sociologist, botanist, geographer, urban planner, educator, founder of museums, schools, and institutions, leader of meetings and associations, poet, and guru...a quick biography, a brief analysis of his works, might be worse than useless. A list of his written works...would fail to convey the complexity and impact of Geddes's thinking.<sup>361</sup>*

Indeed, for the purposes of this essay it is adequate to review a few key points of reference. Patrick Geddes (1854-1932) was born in Ballater, a small town in Scotland's Royal Deeside. Three years later the family moved to a house on Kinnoull Hill near Perth, where Geddes lived throughout his formative years - gardening with his father, doing science experiments in the shed, rambling the hills

<sup>360</sup> Welter, *Biopolis*; Philip Boardman, *The Worlds of Patrick Geddes: Biologist, Town Planner, Re-Educator, Peace-Warrior* (London: Routledge and Kegan Paul, 1978); Philippe Mairet, *Pioneer of Sociology: The Life and Letters of Patrick Geddes* (London: Lund, 1957); Amelia Defries, *The Interpreter Geddes: The Man and His Gospel* (London: Routledge, 1927).

<sup>361</sup> Alessandra Ponte, "Building the Stair Spiral of Evolution: The Index Museum of Sir Patrick Geddes," trans. Jessica Levine, *Assemblage*, MIT Press, no. 10 (December 1989): 47.

and valleys.<sup>362</sup> From 1874 to 1878 Geddes studied with Thomas Huxley, the renowned natural scientist and free-thinker, whose ideas exerted an important early influence on Geddes's own thinking as an evolutionary biologist. Patrick Geddes is generally regarded as Britain's first ecologist,<sup>363</sup> having come to know the German biologist Ernst Haeckel – one of the leading interpreters of Darwin's theory of evolution – who coined the term *ecology* in 1866 as 'the study of the relationship of organisms with their environment'. Equipped with these formative experiences, Geddes turned his attention to the evolution of cities, and his legacy in this field is still being assimilated by the various disciplines whose territories he traversed. *Ecological planning* is one of many disciplines influenced by Geddes, for example, notably through his disciple Lewis Mumford to Mumford's protégé Ian McHarg.<sup>364</sup> Even so, the term *ecology* itself rarely appears in Geddes's writing – he was more involved with the idea of *utopia*, an idea that remains provocative in design and planning disciplines.

### *iii. The Legacy of Utopia*

While the word *utopia* has come to be understood as rather naïve, 'an imagined place or state of things in which everything is perfect,' Patrick Geddes characterized his own interest in the evolution of cities as 'frankly eutopian.' Thomas More's *Utopia*, published in Latin in 1516, is 'a frame narrative primarily depicting a fictional island society and its religious, social and political customs'.<sup>365</sup> In the preface to his first book, *The Story of Utopias*, (1922) Lewis Mumford – Geddes's protégé – attributes to Geddes the observation that More was a punster, and asserts that in coining the term Utopia he was playing on the implications between the Greek terms *outopia* – 'no place' – and *eutopia* – 'the good place'.<sup>366</sup> Mumford writes of 'one-sided utopias', asserting that both the initial attraction and the perceived failure of utopian ideals are attributable to their tendency toward authoritarianism, conformity, and the exclusion of alternative modes of life. He observes that the most striking commonality of historic utopian visions is a kind of technological determinism, the implicit ideal of conquering nature.<sup>367</sup>

In contrast to this, Geddes was focused on transcending the limitations of historic 'one-sided utopias.' Citing Aristotle as the 'founder of civic studies,' Geddes emphasizes his insistence on "seeing our city with our own eyes," urging that our view be *synoptic*, "...a seeing of the city, and this as a whole...Large views in the abstract...depend on large views in the concrete."<sup>368</sup> *Synoptic*, meaning 'seen together,' implies simultaneity, but also suggests the situated experience, rather than an abstract or disembodied concept:

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<sup>362</sup> Pullman, *A Man for Our Times - The Living Legacy of Patrick Geddes*.

<sup>363</sup> Pullman, n. Dr. Keith Skene, director, Biosphere Research Institute.

<sup>364</sup> Forster Ndubisi, *Ecological Planning: A Historical and Comparative Synthesis* (Baltimore: Johns Hopkins University Press, 2002), 19–20.

<sup>365</sup> Thomas More, *Utopia*, 1869th ed. (London: Murray, 1516).

<sup>366</sup> Lewis Mumford, *The Story of Utopias* (New York: Boni and Liveright, 1922), 1.

<sup>367</sup> Mumford, 117, 242.

<sup>368</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 13–15.

*Despite our contemporary difficulties industrial, social, and political, there are available around us the elements of a civic uplift, and with this, of general advance to a higher plane...civic awakening and the constructive effort are fully beginning, in healthy upgrowth, capable not only of survival but of fuller cultivation also, towards varied flower and fruit flower in regional and civic literature and history, art, and science; fruit in social renewal of towns and cities, small and great. Such renewal involves ever-increasing domestic and individual well-being...art may again vitalise and orchestrate the industries, as of old. Nor is this 'merely utopian,' though frankly eutopian. In matters civic, as in simpler fields of science, it is from facts surveyed and interpreted that we gain our general ideas of the direction of Evolution, and even see how to further this; since from the best growths selected we may rear yet better ones.<sup>369</sup>*

Geddes optimistically relies upon his ‘frankly eutopian’ synoptic ideal – instrumentalized through his physical and social surveys – to enable a kind of social craft to bring about the evolution of *synoptic utopias* from existing cities. Considering *genius* in the sense of *ingenuity*, we can say that Geddes’s interpretation highlights the genius of the *idea* of utopia. It is about direct experience and situated knowledge – it is about being *there*.

#### *iv. The Idea of Genius Loci*

In Roman mythology ‘genius locus’ referred to the protective spirit of a place. In contemporary use, coming largely from discourses in landscape architecture,<sup>370</sup> *genius loci* refers to a location’s distinctive atmosphere, or “spirit of place”. In *Our Social Inheritance*, (1919), in a section titled ‘A City Survey for Disoriented Citizens,’ Geddes describes a series of educational walks through London. Focused on the borough of Westminster – and walking from Piccadilly Circus to St. James’s Park, for example – these walks reveal Geddes’s dynamic interpretation of *genius loci*. This active interest in the one to one, real time experiences of a specific site as the basis for *interpretive* design is by now a vital tradition in progressive planning disciplines. Lewis Mumford later credits these Westminster walks with having had a lasting effect on his thinking, Kevin Lynch’s survey methods in *Image of the City*<sup>371</sup> are consistent with these, and Jane Jacob’s notion of the importance of ‘eyes on the street’<sup>372</sup> effectively conveys the essential ethos of *genius loci*. It is fundamentally about *being* there.

These urban walks directly inform Geddes’s surveys in a way that builds on those surveys that were their nearest precedents. Indeed, he was intimately familiar with one of the earliest of ‘comprehensive surveys’ – the Survey of London. Initiated in 1894 by the architect Charles Robert Ashbee in response to the 1892 demolition of the Old Palace of Bromley-by-Bow, the Survey of London

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<sup>369</sup> Geddes, v–vi.

<sup>370</sup> Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (London: Academy Editions, 1980).

<sup>371</sup> Kevin Lynch, *The Image of the City*, first edition (Cambridge: MIT, 1960), 123–81.

<sup>372</sup> Jane Jacobs, *The Death and Life of Great American Cities*, Reissue edition (New York: Vintage, 1992).

was therefore shaped by this somewhat reactionary motivation, and its main purpose was simply to compile a register of historic buildings.<sup>373</sup> As a member of the London Survey Committee convened by Ashbee, Geddes saw a much broader potential in such survey methods. Beyond inventorying buildings and monuments, for Geddes an effective regional survey would “display traces of all the past phases of evolution.”<sup>374</sup>

Geddes’s concept of history as a continuous process of growth is illustrated by his *arbor saeculorum* – ‘a schematic view of all known history’.<sup>375</sup> It is a totemic image of historic eras, with Egypt at the base, then Israel, Greece, Rome, the European Middle Ages, the Renaissance, and the French Revolution, culminating with the contemporary period of industrialized capitalism.<sup>376</sup> Thus, walking through Westminster, Geddes would look for evidence of civic interest from the Roman founding of *Londinium*, (ca.43 AD) and then subsequent ages, in order to discover its *genius loci*.



[fig.2\_Patrick Geddes's *Arbor Saeculorum* (1892)]

The tree of centuries – his schematic view of all known history. *Image courtesy of University of Strathclyde, Glasgow.*

<sup>373</sup> Francis Henry Wollaston Shepard, “Sources and Methods Used for the Survey of London,” in *The Study of Urban History: The Proceedings of an International Round-Table Conference; Leicester on 23-26 September 1966*, ed. H. J. Dyos (London: Arnold, 1968), 131.

<sup>374</sup> Barnett and Geddes, *The Ideal City; Civics: As Applied Sociology*, 108.

<sup>375</sup> Welter, *Biopolis*, 89.

<sup>376</sup> Welter, 89.

Geddes gives *genius loci* central importance in the design process, “...it is impossible to successfully plan against the spirit of the place. Each design that does not take the *genius loci* into account fails, as...John Nash’s plan for Regent Street failed.”<sup>377</sup> Geddes argued that Nash’s plan failed of its intended effect because it “worked against the spirit of the place by ignoring the continuous history of fairs and trade in the area” and that it could only achieve “that which the *genius loci* dictated.”<sup>378</sup> Design in this context is about expressing what is already present in the spirit of the place, as Geddes asserts, “There are deeds and events which cling to a place, and remain an ‘unseen hand’ in the ordering of its destiny.”<sup>379</sup>

Having identified the *genius loci*, the inspired survey “will thus express, stimulate and develop its highest potentiality, and so deal all the more effectively with its material and fundamental needs.”<sup>380</sup> The physical and social surveys are a means to identify *genius loci* through study, analysis, and patient observation, and as such they are essentially diagnostic – elicitive rather than projective. Having sensitively determined the existing dynamics of a site through such a fine-grained reading, Geddes developed an evolutionary approach to working in existing cities he described as ‘conservative surgery.’ Rather than relying on heavy-handed policy or sweeping legislation, he worked with local people through local projects involving arts, community, neighborhood beautification, and education. As Geddes writes,

*My re-planning has not been ‘designed’ in the sense of patterns or inventions, but rather it has become disclosed, like a solution of a chess problem, by the close study of the board and all the pieces on it. There is no other way.*<sup>381</sup>

Thomas Carlyle, the great Scottish historian and polemicist whom Geddes regarded as a genius – writing to Lewis Mumford of the satisfaction he experienced when, on one of his educational walks in London, he encountered Carlyle<sup>382</sup> – was interested enough in the idea of genius to have published his own definition of the word,<sup>383</sup> which was later cited by the American architect Frank Lloyd Wright – also a close friend and correspondent of Mumford’s – when qualifying genius:

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<sup>377</sup> Welter, 115.

<sup>378</sup> Victor Branford and Patrick Geddes, *Our Social Inheritance, The Making of the Future* (London: Williams & Norgate, 1919), 187.

<sup>379</sup> Branford and Geddes, 183.

<sup>380</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, vi.

<sup>381</sup> Patrick Geddes, *Town Planning in Lahore: A Report to the Municipal Council* (Lahore: Commercial Printing Works, 1917), 42.

<sup>382</sup> Novak, *Lewis Mumford and Patrick Geddes*, 2.

<sup>383</sup> Thomas Carlyle, *History of Friedrich II of Prussia, Called Frederick the Great*, vol. VI (London: Chapman and Hall, 1865), chap. 3.

*...the definition of genius that comes down from the ancient Welsh: a genius is a man who has an eye to see nature... Next, a genius is a man with a heart to feel nature... And last, a genius is a man with the courage to follow nature... And I think that is the best definition that I have ever heard..I never liked Carlyle's - 'a man who has the capacity for taking infinite pains'.<sup>384</sup> Well, of course, that he has – but that doesn't define genius. This does. The only thing that is needed to clear it up and make it complete is the definition of the term nature.<sup>385</sup>*

Wright's reflective interpretation of *genius* seems particularly relevant in leading us finally to the question of nature itself - which Geddes addressed in his final published work, a biology textbook succinctly titled 'Life'. Here Geddes's love for his subject inspires him to write, in a manner quite uncharacteristic of biology textbooks, "No one who studies Animate Nature can get past the fact of beauty. It is as real in its own way as the force of gravity."<sup>386</sup> Indeed, Mumford had described as Geddes's most salient characteristic his profound 'reverence for life.'<sup>387</sup> In a final testament, Mumford attested that the inspiration for his own ideal was none other than Patrick Geddes:

*Geddes showed that a conception of life, unified at the center and ramifying in many inter-relations and comprehensions at the periphery, could be rationally lived; that it had not been outmoded by the age of specialization but was actually a mode that might, through its superior vitality and efficiency, supplant this age; that one could practice in one's own person, in the germ, a type of feeling and acting which might ultimately be embodied, with fuller, deeper effect, in the whole community; that, even on the crude test of survival, a life that was organically grounded and pursued with a little courage and audacity had perhaps a better chance than the narrow goals and diminished possibilities of our dominant civilization.*  
*My utopia is such a life, writ large.<sup>388</sup>*

It is tempting to speculate that a large part of what appealed to Mumford about both his mentors was reflected in their own sensitivity to *genius loci* – Geddes's almost mystical admonition to 'wait in reverence for the genius of the place to work its miracle in its own way'<sup>389</sup> – and Wright's ambition that his designs reveal the 'inner nature of the thing...in keeping with his reverence for the place.'<sup>390</sup>

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<sup>384</sup> Paul Franklin Boller and John Herbert George, *They Never Said It: A Book of Fake Quotes, Misquotes and Misleading Attributions* (New York: Oxford University Press, 1989), 12 n. Carlyle's actual phrase is "Genius, which means transcendent capacity of taking trouble, first of all".

<sup>385</sup> Wright, *Frank Lloyd Wright*, 1987, 88.

<sup>386</sup> Thomson and Geddes, *Life: Outlines Of General Biology*, 1:35.

<sup>387</sup> Lewis Mumford, *The Condition of Man* (New York: Harcourt, Brace & Co, 1944), 383.

<sup>388</sup> Lewis Mumford, *Findings and Keepings: Analects for an Autobiography* (London: Secker & Warburg, 1976), 322–23.

<sup>389</sup> Branford and Geddes, *Our Social Inheritance*, 280.

<sup>390</sup> Grant Carpenter Manson, *Frank Lloyd Wright to 1910: The First Golden Age* (New York: Van Nostrand Reinhold, 1958), 130.

*v. Conclusion*

The conservation ideal might seem a strange place to arrive in our consideration of utopia – far from the unrestrained flights of fancy generally associated with the term. Nevertheless, for Geddes and his associates – as for Wright and his colleagues – conservation is the first act in bringing utopia, as an expression of *genius loci*, to life.

In the following section we'll return to the American Midwest – home to Wright, and to Phil Lewis whose work with US Congress and Senate in the 1960s facilitated the expansion of Jensen's early work in ecological conservation. I argue that this alone makes him among the foremost interpreters of this collective utopian legacy.

### 1.2.3 Where Not to Build – Via Negativa and Utopia

*Asserting the contribution of via negativa to the paradigm of utopia on the basis of genius loci. Advancing ecological conservation and a synoptic view of rural and urban, situating the development of ecological planning in historical context, and introducing rural urban constellations and environmental corridors.*

#### i. Introduction

On April 22, 1970, over 20 million Americans – 1 out of 10 of all Americans – took to streets, parks, and public places to demonstrate for a healthy, sustainable environment. This first Earth Day achieved a rare political alignment, engaging ‘Republicans and Democrats, rich and poor, city slickers and farmers, tycoons and labor leaders,’<sup>391</sup> or as the New York Times reported the following day:

*Conservatives were for it. Liberals were for it. Democrats, Republicans, and independents were for it. So were the ins, the outs, the executive and legislative branches of Government.<sup>392</sup>*

In massive rallies from coast-to-coast rallies, over two thousand colleges and universities organized protests against systematic industrialized environmental destruction. These events were an early expression of the common values shared by an array of communities and interest groups that had been fighting for the accountability of the industries responsible for the oil spills, toxic dumps, pesticides, raw sewage, freeways, polluting factories and power plants that led to the loss of wilderness and the extinction of wildlife.



[fig.1-New York Times, the first Earth Day – April 22, 1970]

The article reads in part, “Mayor Lindsey, in a brief speech, helped set the general theme of the day. Behind the complex predictions and obscure language,” he said, “beyond words like ecology, environment, and pollution there is a simple question: Do we want to live or die? The Mayor was among those who brought up the war in Vietnam as an environmental concern. ‘Pure water will not wash away the stain of an immoral war,’ he declared... A quotation from Pogo (comic strip) on one of the booths caught this side of Earth Day: ‘We have met the enemy and they is us.’” Image: New York Times.

<sup>391</sup> “The History of Earth Day,” *Earth Day Network* (blog), accessed March 6, 2017, <http://www.earthday.org/about/the-history-of-earth-day/>.

<sup>392</sup> Joseph Lelyveld, “Mood Is Joyful as City Gives Its Support,” *The New York Times*, April 23, 1970, sec. Archives, <https://www.nytimes.com/1970/04/23/archives/mood-is-joyful-as-city-gives-its-support-millions-join-earth-day.html>.

Earth Day was thus the outcome of local grassroots action to increase environmental awareness, but it also focused the nation's political agenda on urgent environmental issues. Before the end of that year, the first Earth Day had led to the passage of the Clean Air, Clean Water, and Endangered Species Acts, and the creation of the United States Environmental Protection Agency.

The legislator who initiated Earth Day was Wisconsin State Senator Gaylord Nelson, who – after having witnessed a 3-million gallon oil tanker spill in Santa Barbara, California in 1969 – in September of that year proposed a national environmental ‘teach-in’ to send a message to Washington that public opinion was solidly behind a bold political agenda on environmental problems. “It was a big gamble,” Nelson later recalled, “but it worked.”<sup>393</sup>

*Why not organize a huge, grassroots protest about what's happening to our environment?...The environmental deterioration was all around us, and everyone seemed to notice except the political establishment.*<sup>394</sup>

Nelson had been elected to the Wisconsin State Senate in 1948, and remained a member until 1958 when he was elected governor of Wisconsin; Nelson then served two two-year terms before successfully running for Federal Senate in 1962, where he served three consecutive terms – from 1963 to 1981. In his first year as US Senator, Nelson took two actions that were to prove decisive in the founding of Earth Day. First, he convinced President John F. Kennedy to take a five-day, eleven-state national speaking tour to discuss environmental conservation issues – which Kennedy undertook from September 24-29 of that year.<sup>395</sup> Second, he hired Philip H. Lewis Jr. – a young landscape architect who was already laying the groundwork for the discipline of ‘regional design’ - to serve as the director of the State of Wisconsin Recreation Resource, Research and Design, Department of Resource Development.

#### *ii. Lewis's Landscape Suitability Method*

Writing of Lewis's role in the creation of Earth Day, Nelson later wrote, in the introduction to Lewis's quietly groundbreaking book *Tomorrow By Design: A Regional Design Process for Sustainability* (1996):

*The first Earth Day, in 1970, was a nationwide expression of our concern for our environment: our resources, our physical and spiritual wellbeing. Wisconsin, at the beginning of the decade of the sixties, undertook an inventory of its physical and cultural resources as described in the following pages. The method and approach were developed and applied by Professor Philip Lewis to establish priorities for the*

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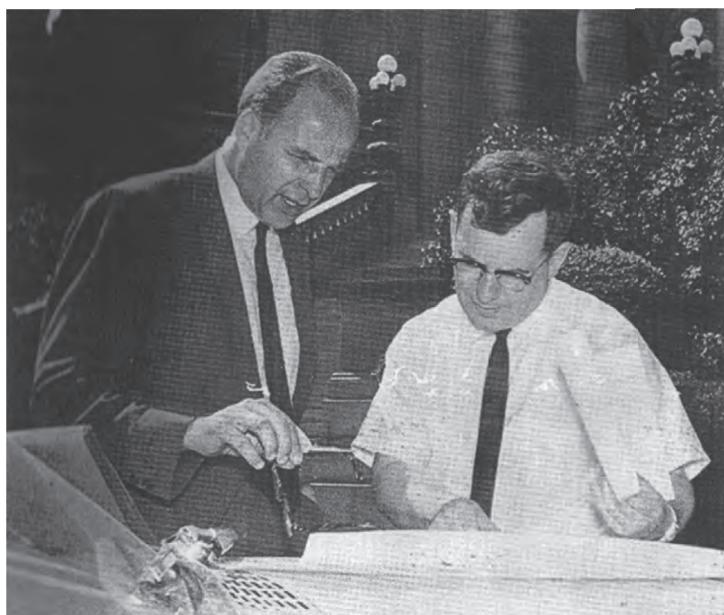
<sup>393</sup> Gaylord Nelson, Paul A. Wozniak, and Susan M. Campbell, *Beyond Earth Day: Fulfilling the Promise* (Univ of Wisconsin Press, 2002), 7.

<sup>394</sup> Nelson, Wozniak, and Campbell, 5.

<sup>395</sup> Nelson, Wozniak, and Campbell, 4.

*development of our \$50 million Outdoor Recreation Act Program for Wisconsin. A part-time staff of 30 worked under his direction over a period of a year and a half. The Wisconsin inventory and analysis, plus similar studies done under Professor Lewis's direction of the Great Lakes basin, the Upper Mississippi valley, and the states of Illinois and Alaska which were supported by the National Park Service, the U.S. Corps of Engineers, the Illinois State Housing Board, and the U.S. Land Law Review Commission, are a core prototype of a national inventory and analysis.<sup>396</sup>*

Simply put, Nelson and Lewis shared the ambition of guiding human patterns of development in response to existing landscape patterns, which serve as ‘form determinants,’ while acting as a preventative restraint on the destructive tendencies of urban and industrial expansion.<sup>397</sup>



[fig.2\_ Governor Gaylord Nelson and Philip H. Lewis, Jr. (1964)] Governor Nelson approves Phil Lewis's cultural and natural inventory of Wisconsin's Apostle Islands. *Image: Philip H Lewis, FASLA.*

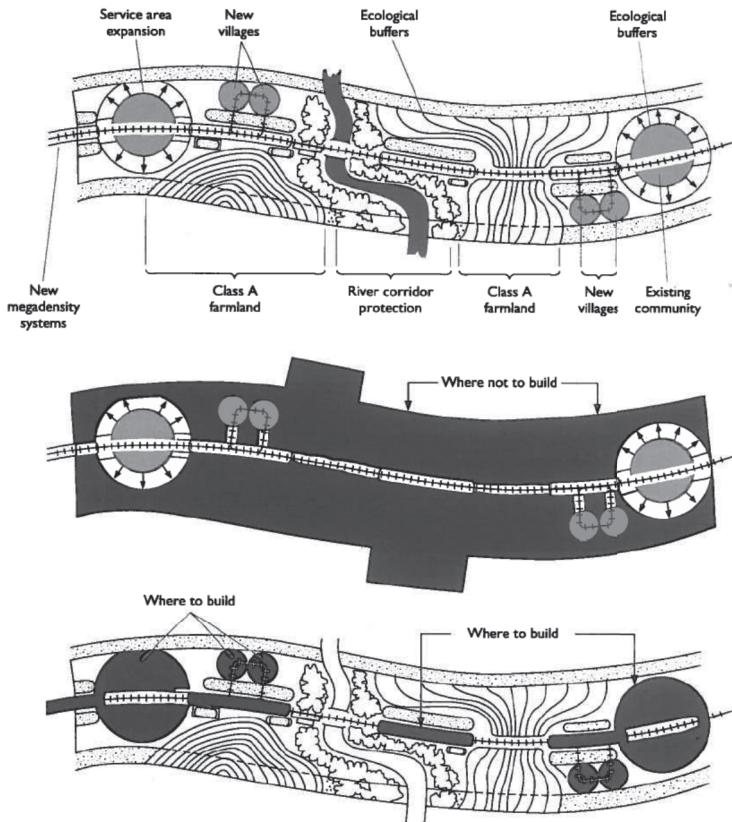
The methods Lewis developed are based on the identification and location of 9 key characteristics within the landscape: open space, vegetation, steep topography, soils, open water, wetlands, streams, railroads, and transportation corridors.<sup>398</sup> Such a modeling approach led Lewis to recognize that the first priority outcome of his method was to identify ‘where not to build’ –deferring, *via negativa*-like, to these nine criteria as form determinants - and stabilizing the ecological anatomy of the region.

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<sup>396</sup> Philip H. Lewis, *Tomorrow By Design: A Regional Design Process for Sustainability*, 1 edition (New York: Wiley, 1996), xiii.

<sup>397</sup> Lewis, 34–38.

<sup>398</sup> Lewis, 225.



[fig.3 \_Where Not To Build] Image: Philip H Lewis, FASLA.

Consistent with this radical insight, the early influential inventory studies described by Nelson were carried out as a design process through four phases: first a *Technology Review*, then Lewis's *Natural and Cultural Inventory*, then the *Identification of Nodes*, and finally the creation of a *Design Proposal for a Nodal Prototype*.<sup>399</sup> This compact process served both as a pedagogical model for teaching, and as a procedural model in practice - enabling Lewis and his team to design and develop a system of parks throughout Wisconsin that are also a functioning network of ecological corridors. These corridors, in turn, provided the form determinants for future development.<sup>400</sup>

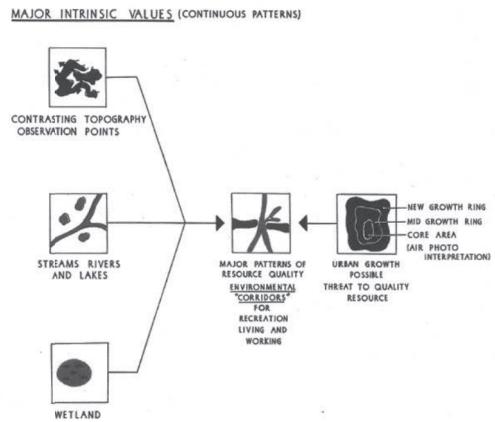
### *iii. Inventing Regional Design*

The first project Lewis took on was the State of Wisconsin Recreation Plan, funded by a 1 cent per pack cigarette sales tax that raised 50 million dollars to fund the purchase of conservation lands.<sup>401</sup> As an ecologist, he knew that his first priority was to acquire the river valleys – the heart of hydrological and soil systems, they are characterized by the three primary form determinants Lewis prioritized first: water, wetlands, and steep topography.

<sup>399</sup> Lewis, 221–25.

<sup>400</sup> Lewis, 69.

<sup>401</sup> Lewis, 69.



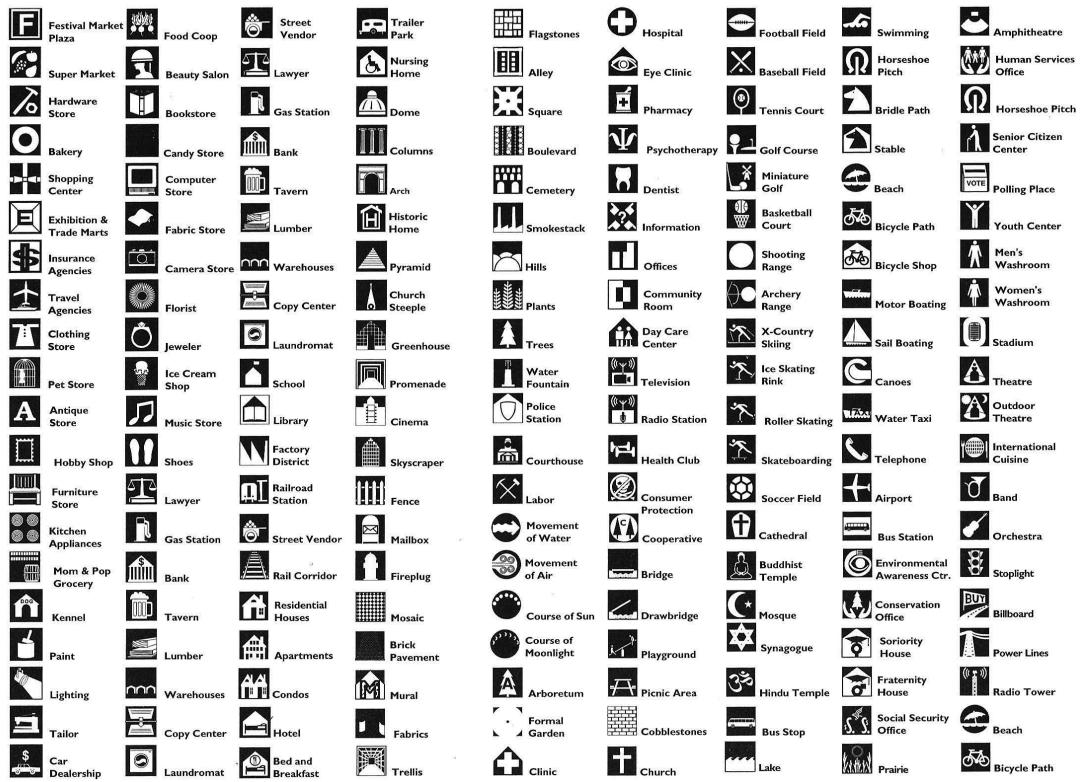
[fig.4\_Water, Wetlands, and Steep Topography (1964)] Pilot Inventory in Rock County, Wisconsin. The inventory technique identifies environmental corridors on the basis of ‘*major intrinsic values*’. *Image: Phil Lewis.*

Even so, Lewis was operating in an explicitly political milieu, and in addition to these radical ecological objectives – often still regarded by hard-nosed pragmatists as ‘utopian’ – he also needed to make the social and economic case for his proposals. Therefore among his first actions was to undertake a survey of 6000 regional inhabitants, in which he provided them with a large scale model of the region and asked them to identify the natural and cultural sites most valuable to themselves.



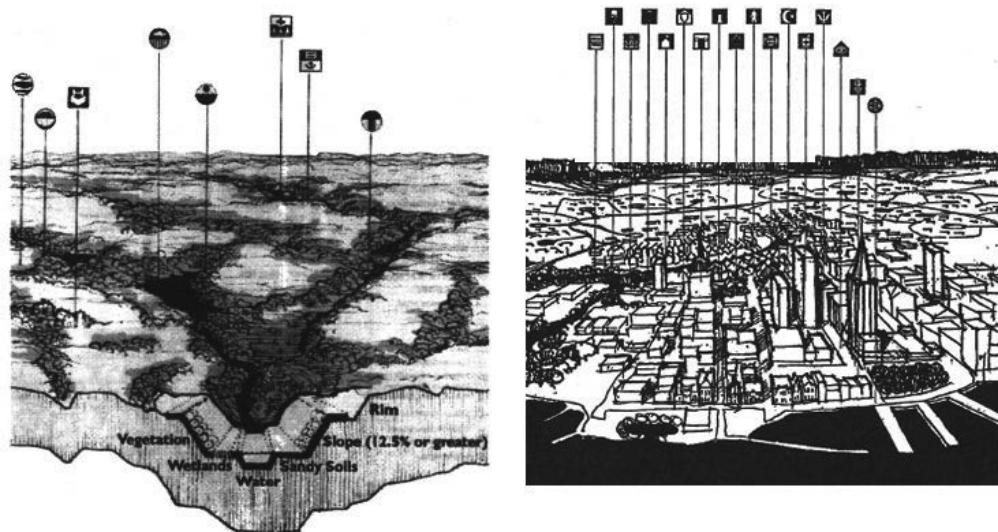
[fig.5\_‘Wisconsin Idea’ model] *Image: Philip H Lewis, FASLA.*

Through this process, Lewis and his team identified the 300 most valued regional 'resources', and created icons for each and placed them on flags with which people could situate their choices on the model.



[fig.6\_300 Regional Icons] An illustrative selection. Image: Philip H Lewis, FASLA.

In powerful confirmation of his ecological objectives, they found that over 90 percent of these were in the river valleys: the favorite *fishing spots, swimming holes, historic bridges and water mills*.<sup>402</sup>



[fig.7\_Rural and Urban Corridors] Image: Philip H Lewis, FASLA.

<sup>402</sup> Lewis, 77.

Reflecting on the advantages of this process, Lewis wrote:

*As a result, we were able to go to the more than 100 different conservation groups in the state and tell them, ‘Look, instead of fighting for just your own individual resource, fight to protect this regional landscape pattern that contains most of the values we all want to protect.*<sup>403</sup>

By conducting such inventories such as those in the Wisconsin Outdoor Recreation Plan, Lewis built consensus by systematically determining where not to build – on the basis of which it became clear, *via negativa*, where to build.

In this way Lewis was able to demonstrate that the values of ecological preservation were at the heart of the state’s recreation and tourism industry – which soon became, and in ensuing years has remained, the basis for sustainable communities and the heart of the regional economy.<sup>404</sup> Throughout this process Lewis participated in inventing the discipline of regional design, a discipline he conceived of as addressing nine key objectives:<sup>405</sup>

- 1) *To identify the carrying capacity of the region for all life and endeavors.*
- 2) *To acquire an understanding of the basic needs and aspirations of the people.*
- 3) *To identify the optimum conditions for the production of food and fiber, offering management policies on guiding production with the least detriment to natural and cultural systems.*
- 4) *To inventory and develop plans for the preservation and enhancement of such resources.*
- 5) *To collect, store, and relate regional information for quick reading.*
- 6) *To give form to sustainable land use options.*
- 7) *To formulate legislation, analyze and propose feasible options, and propose strategies for protection and guiding change of resources.*
- 8) *To measure levels of local comprehension, while developing regional narratives for publication and stories for mass media.*
- 9) *To creatively portray resources and options, capturing a sense of place.*

Acknowledging the important precedent of Regional Planning, Lewis distinguished Regional Design from this precedent by its emphasis on community participation and education, stating:

*Any Regional Design process depends on an interdisciplinary creative intellectual team...balancing the scientific, artistic and humanistic perspectives may seem daunting, but [my] experience...suggests that there is no other better option but to persist in the effort.*<sup>406</sup>

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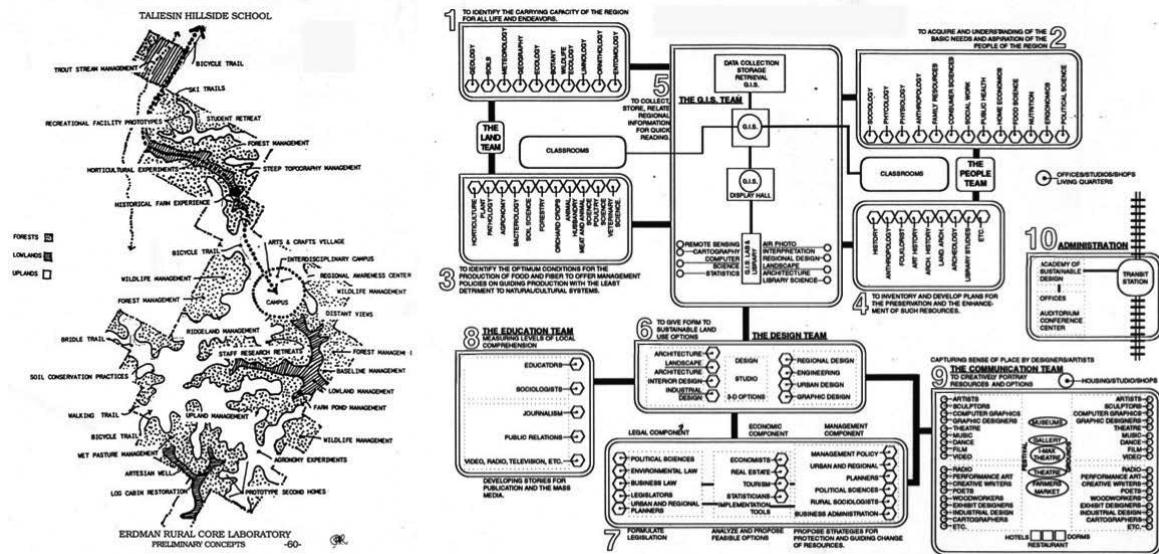
<sup>403</sup> Lewis, 77.

<sup>404</sup> “Travel Green Wisconsin | Travel Wisconsin,” TravelWisconsin, accessed August 4, 2017, [//industry.travelwisconsin.com/travel-green-wisconsin](http://industry.travelwisconsin.com/travel-green-wisconsin).

<sup>405</sup> Lewis, *Tomorrow By Design*, 183–202.

<sup>406</sup> Lewis, 200-01.

This ‘interdisciplinary creative intellectual team’ is conceived of as involving seven sub-teams – The Land Team, The People Team, The GIS Team, The Design Team, The Education Team, The Communication Team, and The Administration Team – each of which consists of an array of specialties, and carries certain shared responsibilities in the regional design process with the other teams. To communicate this process, Lewis developed a Regional Design Team Model in which the relations are illustrated in detail.



[fig.8 \_Regional Design Team Model (2002)] The structure of the interdisciplinary design team is spatially conceived of in explicit response to a specific site - in this case, the Taliesin valley. *Image: the author w/ Phil Lewis.*

It is revealing that for Lewis this diagram was also a schematic layout for a Regional Design campus – each of the nine objectives being addressed by the seven teams in sequence, and in such a way that The Land Team are closest to the land and The People Team are closest to the community, The GIS Team bridging the two and providing for shared classroom space. Likewise, The Communication and Administration Teams are together situated nearest the railroad corridor and its transit station – all of which serves to emphasize the value, in identifying the *genius loci*, of *being there*.

#### *iv. Circle Cities and Park Systems*

In the process of implementing this and many other hugely ambitious projects - such as the Lower Wisconsin State Riverway, a 95,000 acre, 92-mile riverway formally established by state law in 1989, after decades of cooperative effort between citizens, environmental groups and politicians, as facilitated by Lewis and his team<sup>407</sup> - he came to see that although his methods found success at the one-to-one scale, it was difficult for people to conceptually grasp the implications of the work on a regional scale. Deeply troubled by the sense of disorientation that he observed accompanied this shift in scale for public participants in the process, he later wrote:

*Modeling and visualization as provide a tool for imaginative design to help us see the way things are and the way things might be. While searching for solutions to the urban threat to our natural and cultural resources, a marvelous computer-enhanced satellite photo of the United States at night came to my attention. The concentration of city lights reminded me of stars, which in turn brought to mind the constellations that had helped me to memorize 300 stars by which I learned to navigate in the Army Air Corps.<sup>408</sup>*

Here Lewis is referring to how, in 1943 - at the age of 18 - Lewis had enlisted in the Air Corps and was trained as a navigator. The training he undertook entailed night flights over the region, and by viewing the landscape at night – another form of *via negativa* – he was able to identify the already-existing tendency of its complementary opposite – *via positiva* – in the linear transportation networks connecting regional urban centers multimodal corridors.

*Somewhere in our distant past, constellations were identified as a means of organizing and communicating knowledge of the location and size of the stars and the changes in the night sky. That same technique can be used to illustrate rampant urban sprawl and the threat to critical life-sustaining resources. By identifying the earthly lights that show human habitation...it is readily apparent where local resources (based on land, water, and air) are most subject to immediate destruction or alteration and which areas should receive top priority for protection.<sup>409</sup>*

Professor Lewis described how the light patterns he'd observed on those flights revealed 'systems of cities instead of single cities'<sup>410</sup> and prompted him to recognize that the dark zone in this region was in fact Wisconsin's famed 'driftless region': an area of some 150,000 square miles bypassed by the glaciers that had worn smooth the other landscapes on the continent following the last ice age, leaving the region rich in hills and valleys, lakes, wildlife and dense vegetation.<sup>411</sup>

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<sup>407</sup> "Lower Wisconsin State Riverway - Wisconsin DNR," accessed August 4, 2017, <http://dnr.wi.gov/topic/lands/lowerwisconsin/>.

<sup>408</sup> Lewis, *Tomorrow By Design*, 32–33.

<sup>409</sup> Lewis, 33.

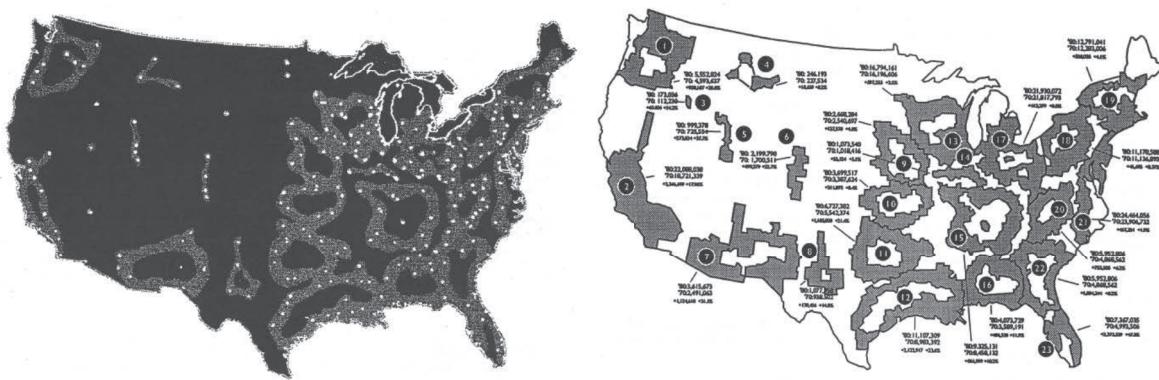
<sup>410</sup> Lewis, 36.

<sup>411</sup> Also known as the Paleozoic Plateau, see "Driftless Area," *Wikipedia*, June 30, 2017, [https://en.wikipedia.org/w/index.php?title=Driftless\\_Area&oldid=788315788](https://en.wikipedia.org/w/index.php?title=Driftless_Area&oldid=788315788).



[fig.9\_The United States at night] Image: Philip H. Lewis, Courtesy of Argonaut Press, Madison, WI.

Considering the exceptional quality of these regional landscapes and their proximity to the circuit of cities, he said he'd already realized then that in the future this 'hole in the donut' would be a great attraction to the ring of people that surrounded it – at that time already some 16 million people – and that this attraction is also a danger to those natural systems.<sup>412</sup> Lewis later extrapolated this approach at the scale of the nation, identifying 23 rural urban constellations, and consistent with the consensus he'd obtained through his survey method – in which it was determined that 90 percent of inhabitants most valued landscape features were located in the river valleys – he found that about 90 percent of the nation's population lived within these 23 constellations.



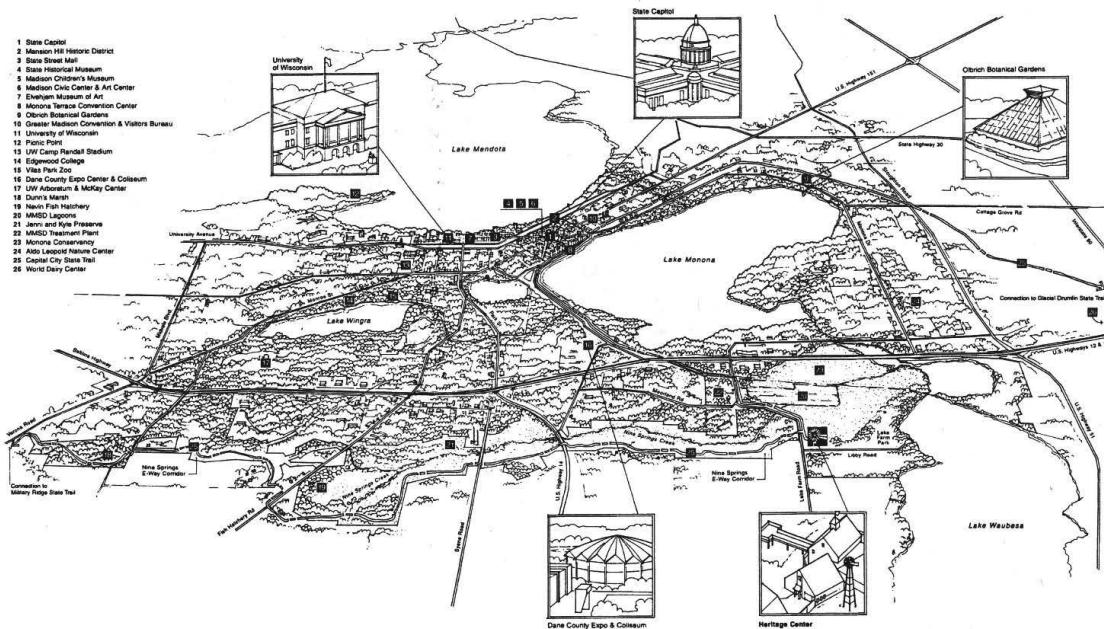
[fig.10\_Circle Cities: Twenty-three rural urban constellations] Image: Philip H Lewis, FASLA.

<sup>412</sup> Dave Skoloda, "The Legacy of Phil Lewis," La Crosse Tribune, July 13, 2017, [http://lacrossetribune.com/couleenews/news/opinion/skol-the-legacy-of-phil-lewis/article\\_1f362519-a601-5372-a5bd-f5d6ebf07a51.html](http://lacrossetribune.com/couleenews/news/opinion/skol-the-legacy-of-phil-lewis/article_1f362519-a601-5372-a5bd-f5d6ebf07a51.html).

This image of ‘circle cities’ proved to be a memorable figure and became a subject of popular discourse, gaining Lewis and his work a great deal of public interest. His early role in establishing a popular movement around Earth Day was thus later mirrored in the attention given ‘Circle Cities’ in the mainstream press. For example, a 1992 feature in the New York Times titled ‘Circles of Cities to Aid the Environment’ described Lewis’s approach and emphasized the *via negativa* nature of the work, writing:

*Professor Lewis says such ‘urban constellations’...are essential for the survival of the population. They are also essential for the survival of natural resources that the population thrives on and, paradoxically, threatens...[His] primary objective is to prevent urban sprawl from spreading into and destroying farmland, water and wetlands...<sup>413</sup>*

Bringing these national-scale objectives down to earth, the article concludes with a section titled ‘A Teaching Lab’, describing Lewis’s ambition to use the landscape itself as a teaching laboratory, ‘which would prompt the public’s interest and make it fun to learn.’ The final example given is of Lewis’s ‘Nine Springs E-way’, then nearing completion – a ‘teaching center’ that is actually a park circuit stretching 18 miles around Madison and connecting sites of natural and cultural interest: like prehistoric mound sites, the 1,260 acre arboretum founded by famed Wisconsin conservationists John Muir [1838-1914] and Aldo Leopold [1887-1948], a fish hatchery, half a dozen museums, several lakes, a sewage-treatment plant and historic buildings.



[fig.11\_The Nine Springs E-way] Image: Philip H Lewis, FASLA.

<sup>413</sup> Tom Capp, “CAMPUS LIFE: Wisconsin; Planning Circle of Cities To Aid the Environment,” *The New York Times*, January 5, 1992, sec. N.Y. / Region, <http://www.nytimes.com/1992/01/05/nyregion/campus-life-wisconsin-planning-circle-of-cities-to-aid-the-environment.html>.

The Nine Springs E-way takes its name from the nine springs connected by this circuit – itself a ‘circle around the city’ – and the nature of the inter-related activities featured there: Ecology, Environment, Economy, and Exercise. In 2012 the county renamed the park system loop in honor of its founder, and it is now known as the Lewis Nine Springs E-way.<sup>414</sup>

Reflecting on Lewis’s disciplinary contributions in an essay titled ‘Landscape Planning: A brief history of influential ideas’, Professor Carl Steinitz situates Lewis’s work in relation to several of the other protagonists we’ve encountered until now – including Thomas Jefferson, Frederick Law Olmsted, Patrick Geddes and Kevin Lynch – and describes its impact:

*The most important and influential [of Lewis’s contributions] is his plan for a system of parks for the State of Wisconsin in 1964. His big idea, supported by his analysis, showed that the corridors along the state’s rivers and streams were the most important places to protect. He was the first to shape a landscape plan around the idea of environmental corridors.*<sup>415</sup>

This assessment is confirmed by Forster Ndubisi in *Ecological Planning: A historical and comparative synthesis*, where he acknowledges Prof. Steinitz’s own contributions relating computational technology to ecological planning in the late 1960s, and writes that among those who sought to ‘find better methods for balancing human use with the protection of landscapes...Philip Lewis and Ian McHarg stand out from the rest.’<sup>416</sup> Indeed, in *An Ecological Method for Landscape Architecture*, McHarg himself sets out his disciplinary ambition and while emphasizing the importance of Lewis’s inventory method, citing his work on environmental corridors:<sup>417</sup>

*I believe that ecology provides the single indispensable basis for landscape architecture and regional planning...it has now, and will increasingly have, a profound relevance for both city planning and architecture. Where the landscape architect commands ecology he is the only bridge between the natural sciences and the planning and design professions, the proprietor of the most perceptive view of the natural world which science or art has provided...The first objective is the inventory of unique or scarce phenomena, the technique for which Philip Lewis is renowned.*<sup>418</sup>

Throughout his life Lewis’s work oscillated between analogy and analysis, observation and imagination – but he consistently emphasized that the nature of this iterative process was rooted in education, and often quoted Thomas Jefferson’s statement, in 1820:

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<sup>414</sup> “Lewis Nine Springs E-Way,” accessed August 7, 2017, <https://parks-lwrd.countyofdane.com/NaturalResourceArea/NineSprings>.

<sup>415</sup> Carl Steinitz, “Landscape Planning: A Brief History of Influential Ideas,” *Journal of Landscape Architecture* 3, no. 1 (March 1, 2008): 72, <https://doi.org/10.1080/18626033.2008.9723397>.

<sup>416</sup> Forster Ndubisi, *Ecological Planning: A Historical and Comparative Synthesis* (Baltimore: John Hopkins University Press, 2002), 24.

<sup>417</sup> Philip H. Lewis, “Quality Corridors for Wisconsin,” *Landscape Architecture*, January 1964.

<sup>418</sup> Ian L. McHarg, “An Ecological Method for Landscape Architecture,” *Landscape Architecture*, January 1967, 105.

*I know no safe depositary of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education.<sup>419</sup>*

It was in reference to this that Lewis summarized his own ambition for the advocacy of cultural values advanced by an education based on landscape values:

*People are learning, and many more will learn to appreciate the land and work with it, not against it. If we creatively teach them new land ethics and values, like Thomas Jefferson said, we can inform their discretion and that's what this is all about: people choosing not to replace natural resources with concrete slabs, people learning to live in harmony with the land.<sup>420</sup>*

By making visible the mutual dependencies of a people and their region Lewis sought, finally, to reinforce democratic ideals by ensuring their perpetuation in both nature and culture – *via negativa*, with ‘where not to build’, and *via positiva*, with ‘rural urban constellations’ – both of which were ultimately given utopian form in regional park systems.



[fig.12\_Rural Urban Constellations, Environmental Corridors and Park Systems] Phil Lewis found that ninety percent of resources and population exist within constellations whose form is a reflection of underlying ecological morphology. He characterized these as ‘landscape personalities’ – areas of distinct visual qualities based on the physical characteristics of the landscape. *Image: Philip H Lewis, FASLA.*

<sup>419</sup> Thomas Jefferson, “Thomas Jefferson to William C. Jarvis, ME 15:278” 1820.

<sup>420</sup> Capp, “CAMPUS LIFE.”

### 1.3 **THE GRAND NARRATIVE: From Individual to Community**

#### 1.3.1 Grand Narratives – The Polemics of ‘Hinterland’ and ‘Manifest Destiny’

*Considering linear historic narratives and their destructive outcomes, showing how design analogy can inform nonlinear design narratives, enabling greater optionality. From the expansion of settlers into the western states, justified by expansionist narratives, to utopia, native peoples and contemporary nonlinear development narratives.*

##### *i. Introduction*

Narrative is most simply defined as ‘a story that it written or told’ – consistent with the word’s origin in Latin *narratīvus*, ‘storytelling’ – but on a deeper level it is acknowledged that a narrative is a story told in such a way as to purposefully represent an overarching set of aims or values.<sup>421</sup> The simple definition generally presumes that the story told is objectively factual and verifiably accurate – indeed, the earliest uses of narrative I’ve found, both books published in London in 1740, explicitly emphasize this. *The Faithful Narrative: or An Impartial Account of the Tryal of Bartholomew Greenwood*, authored by the selfsame Mr. Greenwood, opens with his explanation that he was prompted to write his ‘faithful’ and ‘impartial’ narrative in order to set the record straight:

*The Town having been grossly abused by a fictitious, disingenuous Account of the following remarkable Trial, foisted upon the Publick by an anonymous Author, with no other view than that of filling his own Pockets, by picking those of other People... These Sheets are not calculated to serve a Turn, or for the present Day only; but to convey to future Years, perhaps Ages, an honest and a just Narrative...*<sup>422</sup>

Similarly, *Parish Corruption in Part Display'd: or, a Narrative of the Indicting for Forgery, and Outlawing Mr. Thomas Sayers* – authored by just such an anonymous author as Mr. Greenwood’s narrative sought to refute for the purpose of his own justification – purports to publicly expose ecclesiastical corruption in order that justice might be done:

*Therefore, that you may make a due Judgment, when you have consider'd the Truth of Facts, the ensuing Narrative is put into your hands... as a Screen to Frauds...*<sup>423</sup>

In this way we can see that historic use of the term *narrative* was deliberately polemic – a story truthfully told so as to reinforce honorable aims and values, thereby to ensure that justice is done.

While contemporary writers have recently rehabilitated the term, and it is now used more than ever, historically use of the word was most popular in the late nineteenth century - a period of vigorous

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<sup>421</sup> Oxford University Press, *Oxford American College Dictionary*, Indexed edition (New York: Putnam Adult, 2002).

<sup>422</sup> Bartholomew Greenwood, *The Faithful Narrative: Or An Impartial Account of the Tryal of Bartholomew Greenwood* (London: J. Standen, 1740), iii–iv.

<sup>423</sup> anonymous, *Parish Corruption in Part Display'd: Or, a Narrative of Some Late Transactions in St. Luke's Parish, in the County of Middlesex: Especially Such as Respect the Indicting for Forgery, and Outlawing Mr. Thomas Sayers, the First Head-Church-Warden in That New Parish* (London: J. Roberts, 1740), 2.

European colonialism and American expansionism. The examples one finds from this period vividly illustrate the relatively one-sided polemics attendant to these aggressive initiatives on both sides of the Atlantic. Virtually without exception the ‘narratives’ one finds then fall into one of two related categories: either advocating European colonialism – for example *Narrative of the Indian Revolt from Its Outbreak to the Capture of Lucknow* (1858),<sup>424</sup> *Narrative of an Expedition to the Zambesi* (1865),<sup>425</sup> and *The Recovery of Jerusalem: A Narrative of Exploration and Discovery* (1871)<sup>426</sup> – or justifying American expansionism – books with such evocative titles as *A Brief and True Narrative of the Hostile Conduct of the Barbarous Natives* (1863),<sup>427</sup> *A Narrative of the Wonderful Escape and Dreadful Sufferings of Colonel James Paul and Many of His Men, Inhumanly Burnt at the Stake, and Others Slaughtered by Other Modes of Torture Known Only to Savages* (1869),<sup>428</sup> and *Narrative of Captivity Among Sioux Indians* (1871).



[fig.1\_ngram of ‘narrative’ 1750-2000] Image: ngram.google.com

Each of the examples considered until now address narrative as advocating a polemic position that might be advocated for in a court of law – a dialectic mode of determination whereby two attorneys present their contrasting narratives, and their discrepancies are objectively decided by a judge and jury.<sup>429</sup> In this way any number of polemic narratives enter popular discourse and influence public policy. In this chapter we will consider two historic examples of narrative polemics that insinuated themselves into the cultural sphere through popular discourse and public policy: the narrative of ‘manifest destiny’ and that of ‘hinterlands.’

<sup>424</sup> Sir Colin Campbell, *Narrative of the Indian Revolt from Its Outbreak to the Capture of Lucknow* (London: G. Vickers, 1858).

<sup>425</sup> David Livingstone and Charles Livingstone, *Narrative of an Expedition to the Zambesi and Its Tributaries: And of the Discovery of the Lakes Shirwa and Nyassa. 1858-1864* (London: J. Murray, 1865).

<sup>426</sup> Sir Charles William Wilson, Sir Charles Warren, and Arthur Penrhyn Stanley, *The Recovery of Jerusalem: A Narrative of Exploration and Discovery in the City and the Holy Land* (London: D. Appleton, 1871).

<sup>427</sup> E.B. O’Callaghan, *A Brief and True Narrative of the Hostile Conduct of the Barbarous Natives* (Albany: J. Munsell, 1863).

<sup>428</sup> Robert Andrew Sherrard, *A Narrative of the Wonderful Escape and Dreadful Sufferings of Colonel James Paul: After the Defeat of Col. Crawford, When That Unfortunate Commander, and Many of His Men, Were Inhumanly Burnt at the Stake, and Others Were Slaughtered by Other Modes of Torture Known Only to Savages* (Cincinnati: Spiller, 1869).

<sup>429</sup> Chris Rideout, “Storytelling, Narrative Rationality, and Legal Persuasion,” *The Journal of the Legal Writing Institute* 14 (2008): 53–86.

## *ii. Manifest Destiny*

Alexis de Tocqueville's description of American's 'magnificent image of themselves' serves as a suitable critique of the notion of *manifest destiny* – a term describing the narrative, popularized in the nineteenth century, that American westward expansion was not only possible but destined:

*In Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them: they are insensible to the wonders of inanimate nature, and they may be said not to perceive the mighty forests which surround them until they fall beneath the hatchet. Their eyes are fixed upon another sight: the American people views its own march across these wilds – drying swamps, turning the course of rivers, peopling solitudes, and subduing nature. This magnificent image of themselves does not meet the gaze of the Americans at intervals only; it may be said to haunt every one of them in his least as well as in his most important actions, and to be always flitting before his mind.*<sup>430</sup>

The ecological impacts so vividly described by de Tocqueville illustrate one of the destructive outcomes of this narrowly linear narrative: it was forwarded as a justification for slavery and for wars of aggression – notably with Mexico (1846-48) – and for the US Government's duplicitous treatment of Native Americans, which was effectively a policy of extermination.<sup>431</sup> As Roger G. Kennedy, a former director of the Smithsonian's National Museum of American History, has written:

*The 'destiny' manifested was the imperial expansion of the slave-driven plantation system, first into lands possessed by Native Americans and next into territory torn from Mexico.*<sup>432</sup>

It is worth noting the historian's use of the term *expansion*. As is suggested by Kennedy's use of the word, *expansionism* refers to 'a policy or practice of expansion, and especially of territorial expansion by a nation'.<sup>433</sup> It is precisely in this sense that the phrase 'manifest destiny' had been coined by the influential columnist John O'Sullivan in an anonymous editorial in the autumn of 1845 advocating the annexation of Texas, which he described as 'the fulfillment of our manifest destiny to overspread the continent allotted by Providence for the free development of our yearly multiplying millions. This we have seen done by England...and by France.'

<sup>434</sup>

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<sup>430</sup> Alexis de Tocqueville, "Book 1, Chapter XVII: Of Some Of The Sources Of Poetry Amongst Democratic Nations," in *Democracy in America*, 1831.

<sup>431</sup> Reginald Horsman, *Race and Manifest Destiny: Origins of American Racial Anglo-Saxonism*, Revised ed. edition (Cambridge, Mass.: Harvard University Press, 1981), 190.

<sup>432</sup> Roger G. Kennedy, *Hidden Cities: The Discovery and Loss of Ancient North American Civilization* (New York: Free Press, 1994), 30.

<sup>433</sup> "Definition of *expansionism*," accessed August 8, 2017, <https://www.merriam-webster.com/dictionary/expansionism>.

<sup>434</sup> John O'Sullivan, "Annexation," *United States Magazine and Democratic Review*, August 1845, 6.



[fig.2\_ John Gast, *American Progress* (1872)] Gast's painting, which was widely disseminated as a commercial color print, conveys a range of ideas about the frontier in nineteenth-century America and provides a concise illustration of the narrative of *manifest destiny*. The image is an allegorical representation, showing Columbia (as the personification of the United States) bringing 'light to the West' – and literally installing telegraph wires. Close behind her is the railroad – one of the key technologies enabling expansionism. Chromolithograph published by George A. Crofutt. Image: Prints and Photographs Division, Library of Congress.

By 1850 American expansionism was widely considered as evidence of the innate superiority of the Anglo-Saxon branch of the Caucasian race over native peoples.<sup>435</sup> This assumed superiority was – with irremediably circular logic – used as a justification for further expansionism. Certainly Americans were not unique in embracing a narrative of racial superiority to justify self-interest. Kennedy points out that such biased narratives have often been the source of political philosophy 'from Beijing and Tokyo to Madrid, from Baghdad and Zimbabwe to Belfast' – noting that they were the 'premise of Incan and Aztec foreign policy before any Europeans arrived'.<sup>436</sup>

The fact that the *manifest destiny* narrative was a largely unexamined assumption did not lessen its impact: it was a political expedient that affected scientific attitudes toward Native Americans, and profoundly shaped federal Indian policy from the 1840s through the end of the nineteenth century. After *expansionists* embraced the phrase, the *manifest destiny* narrative proved wildly popular in American society – it was deliberately polemic, after all – and among those critics with the temerity to question

<sup>435</sup> Horsman, *Race and Manifest Destiny*, 1.

<sup>436</sup> Roger G. Kennedy, *Hidden Cities*, 30.

this dominant narrative were Abraham Lincoln, then a member of the U.S. House of Representatives, and Ulysses S. Grant, then a General of the U.S. Army – later the 16<sup>th</sup> and 18<sup>th</sup> Presidents, respectively. Lincoln and his colleagues in the House of Representatives forthrightly denounced manifest destiny, issuing a strongly worded statement in 1848 that read in part:

*...the designers and supporters of schemes of conquest, to be carried on by this government, are engaged in treason to our Constitution and Declaration of Rights, giving aid and comfort to the enemies of republicanism, in that they are advocating and preaching the doctrine of the right of conquest...<sup>437</sup>*

Among those who joined their voices to the polemic against manifest destiny was Albert Gallatin (1761-1849), a Genevan-born Swiss-American politician, diplomat, ethnologist and linguist, who dismissed manifest destiny as only another of ‘these allegations of superiority of race and destiny...[which] are but pretenses under which to disguise ambition, cupidity, or silly vanity.’<sup>438</sup> Gallatin had represented Pennsylvania in the Senate and House of Representatives, and, having been nominated for the post by President Thomas Jefferson, was the become the longest-tenured U.S. Secretary of the Treasury in history; subsequently he was Ambassador to France and then Britain – all before becoming one of the founders of New York University in 1831 and founder of the American Ethnological Society, where for his studies of Native American languages he became known as ‘the father of American ethnology’.<sup>439</sup>

For now it is enough to point out that Gallatin’s outspoken rejection of the narrative of manifest destiny made him many powerful enemies among pro-slavery American expansionists, who hired thugs to heckle Gallatin at public meetings, and subsidized newspaper editors and preachers to denigrate him personally while arguing for expansionist policies – often using the patronizing, racist rhetoric of ‘the white man’s burden’.<sup>440</sup> For thirty years Gallatin dedicated himself to refuting manifest destiny – standing against those who promoted American imperialism, sometimes almost alone – while ‘crowds cheered the Manifest Destiny of Anglo-Saxon Americans to dominate Texas, and, after Texas, Cuba and Mexico.’<sup>441</sup>

Historically, industrialization has been regarded as ‘development’ – a term that in popular discourse is equated with ‘improvement’, just as urbanization is today. But if development is improvement, then industrialization and urbanization – when seen in the context of their cumulative

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<sup>437</sup> ‘Prospectus of the New Series,’ *The American Whig Review*, January 1848.

<sup>438</sup> Raymond Walters, *Albert Gallatin: Jeffersonian Financier and Diplomat*, 1st ed. (Chicago: University of Pittsburgh Press, 1957), 365.

<sup>439</sup> Walters, *Albert Gallatin*.

<sup>440</sup> Roger G. Kennedy, *Hidden Cities*, 33–34.

<sup>441</sup> Roger G. Kennedy, 32.

global impacts – should be recognized as being something else. As Jane Jacobs insightfully observes in *The Nature of Economies* (2000):

*Development is qualitative change. Expansion is quantitative change.*<sup>442</sup>

Taken at face value, it is clear that her statement confirms the equivalence of development and improvement and ‘qualitative change’ – if, that is, we qualify that ‘change’ is indeed an improvement. In that case, while some forms of industrialization and urbanization might possibly qualify as ‘improvement’, more generally these activities are rightly seen as merely ‘expansion’ in Jacobs’s sense.

### *iii. The Origins of Hinterland*

The nonlinear changes effected by industrial and urban expansion are firstly ecological – and they are generally negative impacts, not improvements: in extreme cases creating the ‘holes in the biosphere’ Saskia Sassen so memorably observed.<sup>443</sup> The dramatic, disturbing nature of these impacts are such that industry takes pains to hide them from the general public – often in places they call the ‘hinterlands’. This chapter addresses the unresolved *problematique* embedded in this term, so commonly used today – yet apparently without an appreciation of the deeper implications of its meaning.

There is now, as in Addams and Ashbee and Wright’s era, a certain myopic enthusiasm for urbanism in our disciplinary and cultural milieu. Certain institutional and ideological biases favorable to urbanization are the norm – like the United Nation’s *New Urban Agenda*,<sup>444</sup> or the advocacy of urban expansion over greenbelts and agricultural soils by academics and policy makers at the London School of Economics.<sup>445</sup> These institutions have tended to uncritically adopt the urbancentric and frankly colonialist view of rural as ‘hinterland’<sup>446</sup> – even, rather disturbingly, adopting the characterization of

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<sup>442</sup> Jane Jacobs, *The Nature of Economies*, Reprint edition (New York: Vintage, 1999), 37.

<sup>443</sup> Saskia Sassen, *Expulsions: Brutality and Complexity in the Global Economy*, y First edition (Cambridge, Massachusetts: Belknap Press: An Imprint of Harvard University Press, 2014), 150.

<sup>444</sup> Alexei Trundle et al., “Habitat III Is over, but Will Its New Urban Agenda Transform the World’s Cities?,” The Conversation, October 25, 2016, <http://theconversation.com/habitat-iii-is-over-but-will-its-new-urban-agenda-transform-the-worlds-cities-67432>; “The New Urban Agenda” (Quito, Ecuador: United Nations, December 2016), n. The New Urban Agenda endorsed at the 68th Plenary Meeting of the 71st Session of the General Assembly held on December 2016., <http://habitat3.org/the-new-urban-agenda/>.

<sup>445</sup> London School of Economics and Political Science, *A 21st Century Metropolitan Green Belt*, 2016, n. There is a public polemic emerging, with communities generally on one side and institutions (like LSE, notably funded by Deutsche Bank and pharmaceutical companies) on the other - to be addressed in 2\_Civic Design. <https://www.youtube.com/watch?v=WL9jD3c-xHo&app=desktop>.

<sup>446</sup> Kerr, *Eastern Figures*, 11. n. Kerr area behind a coast or the shoreline of a river. Specifically, by the doctrine of the hinterland, the word is applied to the inland region lying behind a port and is claimed by the state that owns the coast. [see Douglas Kerr (June 1, 2008). *Eastern Figures: Orient and Empire in British Writing*. Hong Kong University Press. p. 11.] More generally, hinterland can refer to the rural area economically tied to an urban catchment area. The size of a hinterland can depend on geography, or on the ease, speed, and cost of transportation between the port and the hinterland. [see Allan Woodburn, *Hinterland connections to seaports*, unece.org, January 23, 2009. Accessed 2009.10.01.]

rural inhabitants as ‘peasants’<sup>447</sup> – regarding the rural countryside as merely location of resources for ‘global’ or ‘planetary urbanization’.<sup>448</sup>

In fact the term ‘hinterland’ was seemingly popularized by historian William Cronon in his *Nature’s Metropolis* – a text that is commonly cited by these current day advocates. But it seems not to be acknowledged that, as used by him, the term was intended as an explicit critique of such *urbancentricity*: Cronon emphasizes that the exploitative nature of that colonialist paradigm was expressed in Chicago’s dominance over its own ‘hinterland’, and carried with it the seeds of ecological, social and economic injustice. Cronon’s historian-minded, rather nuanced critique was too dry, perhaps, to have been evident to these United Nations policy makers and academically-minded architects, but is consistent with the manner in which the term hinterlands is used by other historians. Writing of the imperialist and colonialist origins of the term ‘hinterland’ University of Hong Kong professor Douglas Kerr reveals that it was first used to describe a land-grab in Africa:

*Hinterland is a figure in the discourse of the late nineteenth-century European Empires....The word is almost a history in itself of late nineteenth-century European exploration, encroachment and land-grab. Its first citation in the Oxford English Dictionary is from the Spectator, 19 July 1890: 'The delimitation of the Hinterland behind Tunis and Algiers.' Its second citation, from the Daily News of 12 June 1891, reports Lord Salisbury's recognition of 'the very modern doctrine of the Hinterland, which he expounds as meaning that "those who possess the coast also possess the plain which is watered by the rivers that run to the coast"' To describe a place as Hinterland might already be to make a territorial claim on it...By 1902, J. A. Hobson, the great critic of imperialism, could denounce 'a whole sliding scale of terms from 'hinterland' and 'sphere of interest' to 'effective occupation' and 'annexation' as illustrations of a diplomatic phraseology 'derived for purposes of concealment and encroachment.'*<sup>449</sup>

According to Kerr, *hinterlands* finally means the ‘area behind a coast or the shoreline of a river,’ and specifies that the ‘doctrine of the hinterland’ applies to the inland region ‘lying behind a port [that] is claimed by the state that owns the coast.’<sup>450</sup> More generally, he states that hinterland can refer to ‘the rural area economically tied to an urban catchment area.’<sup>451</sup>

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<sup>447</sup> Kearney, *Reconceptualizing The Peasantry*.

<sup>448</sup> Milica Topalovic et al., *Architecture of Territory: Hinterland* (Zurich: ETH, 2013); Brenner, *Implosions/Explosions*, n. Current use of these terms is popularized by institutional figures like Prof. Milica Topalovic at ETH-Zurich and Prof. Neil Brenner at Harvard University. Milica Topalovic’s terminology is also particularly explicit in this regard – when reading her work one is struck by the use of terms like ‘territory power difference,’ ‘urbanization of an oasis,’ ‘expansion into the desert,’ and ‘urbanization of limited resources’ – in fact these are the headings found on a single page of one of her books.

<sup>449</sup> Kerr, *Eastern Figures*, 11.

<sup>450</sup> Ibid., 12.

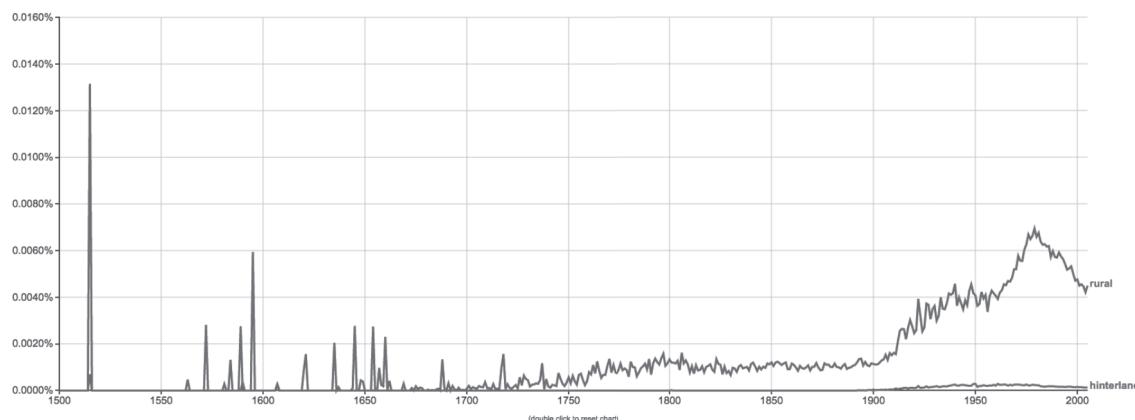
<sup>451</sup> Ibid.

As Cronon implicitly criticizes the ambitions of urbanists to territorialize their own contemporary ‘hinterlands’, Kerr makes clear that the negative impacts of these historic policies are well-documented and therefore inadvisable. Nevertheless, some of the United Nation’s own researchers currently advocate the same exploitation of these regions, describing that the size of a hinterland ‘can depend on geography, or on the ease, speed, and cost of transportation between the port and the hinterland.’<sup>452</sup> And so it is that to this day institutional protagonists of ‘planetary urbanization’ conceive of rural areas as their ‘hinterlands’ – whether they are genuinely unaware of its implications, or simply are brazenly, opportunistically colonialist in their ambitions.



[fig3\_Map of Colonial Powers in Africa, ca. 1913]

Image: Eric Gaba, Wikimedia Commons



[fig.4\_Bigram, *rural* and *hinterland*] An ngram search of the term *rural* shows that its greatest popularity, in terms of percentage of books published per year, was in 1515 when at .01315% it was more than double the percentage of books currently in print similarly featuring the term. Interestingly, the titles most commonly refer to activities explicitly cultural, rather than the agricultural and ‘natural resource’ values commonly assumed as being for-the-benefit-of-urbanists: see for example William Somerville’s *The Rural Games: A Burlesque Poem, in Blank Verse* (1740); John Gay’s *Rural Sports, a Georgic Poem* (1745); Alexander Nicol’s *The Rural Muse: Or, A Collection of Miscellaneous Poems, Both Comical and Serious* (1753); John Halfpenny’s *Rural Architecture in the Chinese Taste, Being Designs Entirely New* (1755); or Francis Douglas’s *Rural Love: A Tale, in the Scottish Dialect* (1759). In comparison *hinterland* was never truly a popular term, its greatest use being in 1589 when it appeared in the titles of .00276% of English language books published. Image: ngram.google.com

<sup>452</sup> Allan Woodburn, “Hinterland Connections to Seaports” (United Nations Economic Commission for Europe, 2010), <http://dag.un.org/handle/11176/364897>.

Even apparently well-intentioned, well-supported, beautifully ‘designed’ state-of-the-art urbanization projects have recently precipitated ecological and social crises, riots, and war. For example, in Addis Ababa, the highland capital of Ethiopia, the city administration took advantage of popular support for a grassroots park system, highjacking the project and using it as a pretext for an extraterritorial land-grab – forcing native autonomous Oromo communities to vacate their native lands, and precipitating a degree of civic unrest locals simply call civil war.<sup>453</sup> We will return again to these references in *2\_Civic Design*, but for the moment it is enough to recall that ‘hinterland’ was introduced into the English vocabulary to describe exactly this kind of land grab in Africa by European colonists. Despite the persistence of such problematic legacies as African colonialism and Western exploitation, communities whose broader popular interest in social and regional context tends towards ruralism are challenging the institutional hegemony of urbanism. Finally, in some places, rural and urban are again coming to be seen, as Sébastien Marot has written, as ‘opposites, but not necessarily exclusive of each other’.<sup>454</sup> Their opposition is rather implicitly regarded as potentially providing greater and more numerous options in a broader context. The commonality among such options is that they are development in the sense of ‘improvement’ – and for the benefit of local communities.

I argue that the term ‘hinterland’ represents expansion rather than development. As historically it represented colonial interests, it represents ‘absentee landlords,’ wherein corporate interests are modern colonial powers. In clarifying the meaning and the use of the idea of *hinterland*, finally we see that it really ought to be obsolete – and replaced by a more accurate term that recognizes rural and urban as reciprocal regional relations. Whether ancient Roman’s *otium*, Cicero’s *second nature*, or Liberty Hyde Bailey’s *ruralism* - this term should be suitably direct, and its priority clearly ought to be an expression of ecology, of community – and of democracy itself.

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<sup>453</sup> See Ezana Haddis, “How Not To Make A Master Plan,” *Addis Standard*, June 25, 2014, <https://advocacy4oromia.org/articles/how-not-to-make-a-master-plan/>; Kalkidan Yibeltal, “Addis Abeba’s Proposed Master Plan Sparks Nationwide University Students’ Protest,” *Addis Standard* (blog), May 2, 2014, <http://addisstandard.com/addis-abebas-proposed-master-plan-sparks-nationwide-university-students-protest/>; Kalkidan Yibeltal, “A New Master Plan: Complicated-Turned-Deadly,” *Addis Standard*, June 24, 2014, <http://addisstandard.com/a-new-master-plancomplicated-turned-deadly/>; Tsegaye Ararssa, “Why Resist the Addis Abeba Master Plan? - A Constitutional Legal Exploration,” *Addis Standard* (blog), August 20, 2015, <http://addisstandard.com/why-resist-the-addis-abeba-master-plan-a-constitutional-legal-exploration/>; Mahlet Fasil and Tsedale Lemma, “Oromo Protests: Defiance amidst Pain and Suffering,” *Addis Standard* (blog), December 16, 2015, <http://addisstandard.com/oromo-protests-defiance-amidst-pain-and-suffering/>; Mahlet Fasil, “Oromo Protests: Dozens Die in West Aris Protests; Situation ‘Extremely Volatile,’” *Addis Standard* (blog), February 16, 2016, <http://addisstandard.com/oromo-protests-dozens-die-in-west-aris-protests-situation-extremely-volatile-police-officer/>; “Battered by Persistent Public Protests, Ethiopia Forms New Government,” *Addis Standard* (blog), November 1, 2016, <http://addisstandard.com/news-battered-persistent-public-protests-ethiopia-forms-new-government/>; “Breaking: Amidst Intensive Public Protests Ethiopia Declares State of Emergency,” *Addis Standard* (blog), October 9, 2016, <http://addisstandard.com/7784-2/>; “Editorial: Ethiopia Should Stop Killing, Maiming and Incarcerating Its People’s Question,” *Addis Standard* (blog), February 9, 2016, <http://addisstandard.com/editorial-ethiopia-should-stop-killing-maiming-and-incarcerating-its-peoples-question/>; “The Human Cost of Ethiopia’s Sweeping State of Emergency: ‘I Never Wanted to See Tomorrow,’” *Addis Standard* (blog), December 20, 2016, <http://addisstandard.com/human-cost-ethiopias-sweeping-state-emergency-never-wanted-see-tomorrow/>; Tsegaye Ararssa, “Commentary: The Interest That Is Not so Special: Addis Abeba, Oromia, and Ethiopia,” *Addis Standard* (blog), January 18, 2017, <http://addisstandard.com/the-interest-that-is-not-so-special-addis-abeba-oromia-and-ethiopia/>.

<sup>454</sup> Marot, *Sub-Urbanism and the Art of Memory*.

### 1.3.2 Nonlinear Narrative – Analogy, Proportion, and Heuristics

*Introducing narrative theory as complementing design analogy, informing nonlinear design narratives, and finally enabling greater optionality. From binary opposition and the identification of contemporary narratives to the use of mythological narratives as a way of situating contemporary events.*

#### *i. Introduction*

In the last chapter we evaluated the historic origins of the term *narrative*, and the traditional use of narrative in polemics. Contemporary advertising and marketing agencies, whose head executives are taking positions within prominent institutions where they teach programs with such titles as ‘Strategic Storytelling’ and ‘Narrative Thinking’, are also increasingly taking up such narrative methods.<sup>455</sup> Acknowledging that ‘media-savvy audiences begin to tune out advertising messages’, these courses promise to teach would-be salespeople to learn how narrative ‘can be used to achieve maximum impact in a digital world’ – noting that ‘because they play to the emotions and rely upon empathy, [narratives are] a powerful tool’.<sup>456</sup> Of course, ‘maximum impact’ in this context means increased sales, or ‘greening up’ the image of multinational corporations.

And it is remarkably effective. Why? To begin with, neuroscientists and cognitive psychologists have repeatedly demonstrated that stories are generally more effective than rational arguments at changing people’s minds.<sup>457</sup> People tend to view the world in narrative terms - as a story to be told, rather than as a thesis to be argued. Certainly narrative is more than simply a mode of argumentation, or of mass marketing – it is also pertains to memory, through myth, and to the future, through theory. The use of mythological narratives as a way of remembering historical events has a clear utility: even when the facts are rather imprecise, they embody relational principles much in the way that heuristics do and can yield meaningful approximate interpretations through analogy. And in our own design fields it is increasingly common to use narrative to refer to a way of thinking about – and advocating for – a certain vision of the future.

Indeed, this is very much in line with the origins of the word ‘theory’ itself, which we derive from the Greek *theoria* –meaning ‘vision, or contemplation’, from *theoros* ‘spectator’.<sup>458</sup> Contemporary definitions of theory include ‘an idea used to account for a situation or justify a course of action’ – as

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<sup>455</sup> “Faculty | Columbia - School of the Arts,” n. Rather insidiously, the term “strategic storytelling” was literally trademarked by one of these marketeers, accessed August 15, 2017, <https://arts.columbia.edu/strategic-storytelling/faculty>.

<sup>456</sup> “Strategic Storytelling | Columbia - School of the Arts,” accessed August 15, 2017, <https://arts.columbia.edu/overview-digital-storytelling-strategy>.

<sup>457</sup> Walter R. Fisher, “Narration as a Human Communication Paradigm: The Case of Public Moral Argument,” *Communication Monographs* 51, no. 1 (March 1, 1984): 1–22, <https://doi.org/10.1080/03637758409390180>; Branka Milivojevic et al., “Coding of Event Nodes and Narrative Context in the Hippocampus,” *Journal of Neuroscience* 36, no. 49 (December 7, 2016): 12412–24, <https://doi.org/10.1523/JNEUROSCI.2889-15.2016>.

<sup>458</sup> Sylvain Auroux, ed., *Les Notations Philosophiques Dictionnaire*, vol. 2, *Les notions philosophiques* (Paris: Presses Universitaires de France, 1990), 2590.

in the theory of Anglo-Saxon racial supremacy behind exploitative narratives like *manifest destiny* and *hinterlands* – and, somewhat less disturbingly, ‘a set of principles on which the practice of an activity is based’ – as in a theory of education, or of architecture – as well as ‘a supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.’<sup>459</sup>

Each of these definitions closely coincide with our emphasis on analogy, heuristics and narrative – so closely, in fact, that in many cases one could even exchange the definitions of those words with that of theory itself. Nevertheless, while emotions may overwhelmingly drive behavior – leaving us vulnerable to exploitation by ‘strategic storytellers’ – it would be a mistake to believe that thinking and feeling are somehow mutually exclusive. In this section we will consider ‘narrative theory’ as it was conceived of by two philosophers who observed its essential relationship with dualism – namely Claude Levi-Strauss (1908–2009) and Jean-François Lyotard (1924–98) – and showing how, when it comes to storytelling and decision-making, emotion and logic are involved in a nonlinear way.<sup>460</sup>

### *ii. Narrative as Theory*

Grand narratives – sometimes called meta-narratives – are large-scale theories and philosophies about the world: such as the progress of history, science’s ability to know everything, and the possibility of absolute freedom. When French sociologist Jean-François Lyotard (1924–98) asserted ‘the collapse of grand narratives’ in *The Postmodern Condition* (1979) he characterized the assertion as based on his observation that the postmodern condition had led to widespread skepticism towards universalizing narratives, which he broadly categorizes as being either ‘emancipatory’ or ‘speculative’:

*The grand narrative has lost its credibility...regardless of whether it is a speculative narrative or a narrative of emancipation.*<sup>461</sup>

He is careful not to say whether this is good or bad in his opinion, but he does suggest that society has outgrown the need for grand narratives due to the advancement of techniques and technologies since World War II, which he says have ‘shifted emphasis from the ends of action to its means.’<sup>462</sup> Referring explicitly to the ‘nihilism...inherent in the grand narratives of the nineteenth century’ – an apt characterization of both *manifest destiny* and *hinterlands* – Lyotard argues that any such one-sided narratives told to justify a single set of laws and interests are inherently unjust.<sup>463</sup> Further, he also

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<sup>459</sup> Press, *Oxford American College Dictionary*.

<sup>460</sup> Douglas van Praet, “The End Of Rational Vs. Emotional: How Both Logic And Feeling Play Key Roles In Marketing And Decision Making,” Fast Company, May 16, 2013, <https://www.fastcompany.com/1682962/the-end-of-rational-vs-emotional-how-both-logic-and-feeling-play-key-roles-in-marketing-and->.

<sup>461</sup> Jean-François Lyotard and Fredric Jameson, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, 1st edition (Minneapolis: University Of Minnesota Press, 1984), 37.

<sup>462</sup> Lyotard and Jameson, 37–38.

<sup>463</sup> Lyotard and Jameson, 38; James Williams, “Jean-François Lyotard,” in *Key Contemporary Social Theorists*, ed. Anthony Elliott and Larry Ray (Oxford: Wiley-Blackwell, 2002), 211.

argues against the possibility of justifying narratives that bring together disciplines and social practices – like science and culture – being skeptical of any account that claims linear progress and the elimination of conflicts and differences.<sup>464</sup>

Lyotard goes on to suggest that ‘little narratives’ have become the preferred means for explaining the world, and for making decisions:

*Consider the form of popular sayings, proverbs and maxims: they are like little splinters of potential narratives, or molds of old ones, which have continued to circulate on certain levels of the contemporary social edifice.*<sup>465</sup>

The utility of these ‘little narratives’ coincides with our approach to heuristics more generally – they are culturally situated, and expressive of shared values, while still admitting of meaningful difference. In his next book, *Le Différend* (1983) Lyotard addresses the essential dualism of sameness and difference, coining the term *differend* as being a conflict between two positions that cannot be justly resolved – it can be identified, but must remain open-ended and unresolved.<sup>466</sup> Having identified such difference we can become aware of such conflicts – and if we can understand the claims of both sides of such an antagonism, that understanding can itself act as a preliminary bridge between them.

In fact Lyotard’s thought is suffused with the kind of dualism we’ve seen throughout these chapters. As with the nonlinear relations between logic and emotion that we’ve identified in the introduction, Lyotard identifies both storytelling and decision-making as being played out between the polarities of *reason*, on one hand, and the *sublime*, on the other. Lyotard makes clear that this dualism is itself comprised of other sets of dualisms, when he describes that feeling of the sublime is itself the conjunction of the opposing sensations of *pleasure* and *pain*, which he broadly equates with *attraction* and *repulsion*.<sup>467</sup>

A *differend* makes us aware of an injustice that requires a remedy, while recognizing that there can be no such resolution. What remains for us is to ‘testify to this disabling state against any unjust attempt at resolution’,<sup>468</sup> and the objective Lyotard consistently orients us toward in his later essays is to deploy this feeling for the *sublime* against *rational* ideas intent upon consensus. Sameness is an easy basis for consensus and closure. Difference involves exclusions and open-endedness. Lyotard asserts that it is the task of the philosopher to testify for both, to temper each, and open each to its other.

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<sup>464</sup> Williams, “Jean-François Lyotard,” 211.

<sup>465</sup> Lyotard and Jameson, *The Postmodern Condition*, 84.

<sup>466</sup> Jean-François Lyotard, *Differend: Phrases in Dispute*, 1st ed. (Minneapolis: University of Minnesota Press, 1988).

<sup>467</sup> James Williams, “Jean-François Lyotard,” in *Key Contemporary Social Theorists*, ed. Anthony Elliott and Larry J. Ray, 1st ed. (Oxford: Wiley-Blackwell, 2002), 213.

<sup>468</sup> Williams, 213.

Lyotard's concern for the minority interests of marginalized people is evident in his critique of grand narratives, as it is in his earliest work, including a series of essays written for the journal *Socialisme ou barbarie* – collected in his final book, *Political Writings* (1993) – while a professor of philosophy in French Algeria (at Lycée Ahmed Reda Houhou à Constantine from 1950-52).<sup>469</sup> These were optimistic essays of hope and encouragement to the Algerians, broadly supporting the Algerian fight for independence from France. The failure of this mass revolutionary movement made Lyotard more skeptical about revolutionary movements, and prompted him to observe that a popular loss of faith in grand narratives had a profound effect on subsequent social form.

If postmodern society is preoccupied with 'little narratives' and is skeptical of 'grand narratives', as Lyotard argues, what is to keep society from falling apart due to the injustices imposed by the popular majority on the less popular minority – or, vice versa, from the wealthy minority on the marginalized majority? What possible unifying narrative might be shared between such extremely oppositional interests?

### *iii. Levi-Strauss's Narrative Theory – Binary Opposition*

Lyotard's elder contemporary Claude Levi-Strauss (1908–2009) argued that our understanding of words doesn't require a meaning, but rather the knowledge of its opposite - he called this relationship between a word and its opposite 'binary opposition'.<sup>470</sup> In his effort to develop a theory of narrative, Lévi-Strauss studied hundreds of myths and legends from around the world in an attempt to discover, in practical terms, how language is actually constructed.<sup>471</sup> He came to regard words as symbols for social constructs, and realized that these are relative and not permanent – the relationship between words of 'binary opposition' being more stable than the words themselves.

Essentially Levi-Strauss's narrative theory is that conflict is revealed by binary opposites, making the binary expression of conflict the central climax of narrative structure. His work addressed culture itself as a system of communication and values – rather than the traditional preoccupation with self-sufficient total systems, Levi-Strauss highlighted culture as the ongoing, ubiquitous and dispersed production of meanings revealed by the significant differences and similarities between cultural elements.<sup>472</sup>

As distinct from his contemporaries, who employed analytical methods based on the sequential, linear order of events – known as *syntagmatic* analysis, referring to the sequential relationship a word has with other words that surround it in a narrative – Lévi-Strauss sought to highlight binary

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<sup>469</sup> Jean-Francois Lyotard, *Political Writings*, trans. Bill Readings and Kevin Paul Geiman, 1st ed. (Minneapolis: University of Minnesota Press, 1993).

<sup>470</sup> Claude Lévi-Strauss, *Structural Anthropology* (New York: Basic Books/Harper, 1963), 159.

<sup>471</sup> Alan Dundes, "Binary Opposition in Myth: The Propp/Levi-Strauss Debate in Retrospect," *Western Folklore*, Western States Folklore Society, 56, no. 1 (Winter 1997): 39–50.

<sup>472</sup> Zygmunt Bauman, "Claude Lévi-Strauss," in *Key Contemporary Social Theorists*, ed. Anthony Elliott and Larry J. Ray, 1st ed. (Oxford: Wiley-Blackwell, 2002), 198.

oppositions by *paradigmatic* analysis, revealing the nonlinear relationships between words in a narrative. Lévi-Strauss consistently regards such linear, sequential analysis as too obvious and superficial, preferring nonlinear ‘paradigmatic’ analysis, “in which the contradictions of linear models can be resolved...by polar oppositions.”<sup>473</sup> While recognizing that a certain sequential order does exist in mythical narratives, he felt that it was relatively arbitrary, and generally misleading:

...what if patterns showing affinity, instead of being considered in succession, were to be treated as one complex pattern and read globally?...myth will [then] be treated as would be an orchestra score [that was formerly] perversely presented as a unilinear series...where[as] our task is to re-establish the correct disposition.<sup>474</sup>

Throughout his four-volume *Mythologiques* series, Lévi-Strauss repeatedly criticizes the *syntagmatic* linearity and praises *paradigmatic* nonlinearity. In the first volume, *The Raw and the Cooked*, he claims that a detail from one myth that is ‘absurd on the syntagmatic level’ becomes ‘coherent from the paradigmatic point of view.’<sup>475</sup> The linguist John Sinclair contends that the tradition of linguistic theory has been massively biased in favor of paradigmatic rather than syntagmatic relations.<sup>476</sup> While Levi-Strauss clearly polemicized one over the other, subsequent generations have identified these methods as themselves representative of another essential binary opposition, each corresponding with one of two linguistic axes – associating *syntagmatic* relations with the *horizontal axis*, and *paradigmatic* ones with the *vertical axis*.

When Lévi-Strauss was appointed to the chair of Social Anthropology at the Collège de France in 1959, his inaugural lecture presented a narrative analysis that was hailed as ‘a brilliant tour de force’ revealing four distinct sets of binary oppositions: geographic (east vs. west), cosmological (upper world vs. lower world), economic (land-hunting vs. sea-hunting), and sociological (patrilocal residence vs. matrilocal residence).<sup>477</sup> In the final volume of *Mythologiques*, in a chapter titled ‘Binary Operators,’<sup>478</sup> Lévi-Strauss introduces his notion of ‘mythemes’ – his neologism referring to the basic units of myths as ‘themes’:

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<sup>473</sup> Roland A. Champagne, *The Structuralists on Myth: An Introduction* (Garland Publishing, 1992), 42.

<sup>474</sup> Claude Lévi-Strauss, “The Structural Study of Myth,” *The Journal of American Folklore* 68, no. 270 (1955): 432, <https://doi.org/10.2307/536768>.

<sup>475</sup> Claude Lévi-Strauss, *Mythologiques: The Raw and the Cooked*, vol. 1 (Chicago: University of Chicago Press, 1969), 253.

<sup>476</sup> John Sinclair, *Trust the Text: Language, Corpus and Discourse*, ed. Roland Carter (New York: Routledge, 2004), 104.

<sup>477</sup> Dundes, “Binary Opposition in Myth: The Propp/Levi-Strauss Debate in Retrospect,” 42.

<sup>478</sup> Claude Lévi-Strauss, *Mythologiques: The Naked Man*, vol. 4 (Chicago: University of Chicago Press, 1990), 537 n. This chapter opens with the following quote, “This logical rule being understood, take those two contraries, joy and sadness, then those other two, white and black, for they are physically contrary. If so be, then, that black do signify grief, by good reason then should white import joy. *The Great Gargantua* translated by Sir Thomas Urquhart and Pierre Mocreux, Vol. I, Ch. X”.

*...all mythemes of whatever kind, must, generally speaking, lend themselves to binary operations, since such operations are an inherent feature of the means invented by nature to make possible the functioning of language and thought.*<sup>479</sup>

In principle, Lévi-Strauss's 'mythemes' bear a distinct similarity to Lyotard's 'little narratives' – heuristic, analogical, and comparative in nature, their usefulness is evidenced by their use in different combinations in response to specific contexts.

In arguing that the human mind thinks fundamentally in these binary oppositions and anticipates the possibility of their unification, Lévi-Strauss was likely influenced by Goethe's contemporary Johann Gottlieb Fichte (1762-1814), who had written in a polemic treatise published anonymously in 1792:

*...the act of consciousness itself is obviously a synthesis, and indeed, the highest synthesis and the foundation of all other possible syntheses. This raises the very natural question: How is it possible to trace all the actions of the mind back to an act of connecting? How is synthesis conceivable without presupposing thesis and antithesis?*<sup>480</sup>

This thesis, antithesis, synthesis triad – now known generally as *the dialectical method* – is often attributed to Fichte's (and Goethe's) contemporary Georg Wilhelm Friedrich Hegel (1770-1831), but Hegel never used the terms. *Dialectics* is generally a polemical method that involves some form of contradictory process between opposing sides. Once again Plato provides the classic pedagogical precedent, presenting his 'Socratic dialogues' as back-and-forth debates between Socrates on one side, and another person or group of people – his interlocutors – on the other. Hegel regarded dialectics as a 'speculative mode of cognition,' and, like other dialectical methods, he relies on a contradictory process mediating between opposing sides and leading to a linear development from less sophisticated definitions or views to more sophisticated ones later.<sup>481</sup>

But whereas Plato's opposing sides were always individuals (namely Socrates and his interlocutors), the opposing sides in Hegel's dialectics are, as with Fichte, determined by the subject being addressed – and while Hegel acknowledged that the dialectical method was a philosophical tradition stretching back to Plato, he was critical Plato's method, arguing that Plato is unable to get beyond skepticism or nothingness and is stuck in *reductio ad absurdum* arguments which reason that when the premises of an argument lead to a contradiction, then the premises must be discarded –

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<sup>479</sup> Lévi-Strauss, 4:551.

<sup>480</sup> Johann Gottlieb Fichte, *Fichte: Early Philosophical Writings*, trans. Daniel Breazeale, First Printing edition (Cornell University Press, 1993), 63.

<sup>481</sup> Georg Wilhelm Friedrich Hegel, *Hegel: Elements of the Philosophy of Right*, ed. Allen W. Wood, trans. H. B. Nisbet, Revised ed. edition (Cambridge: Cambridge University Press, 1991), 10.

leaving nothing.<sup>482</sup> Hegel, like Fichte – and later Lévi-Strauss – emphasized that the conscious experience of life itself is ‘the highest synthesis’, while acknowledging that such experiential synthesis is transitory rather than permanent. Complementing Lyotard’s valid skepticism of genuine synthesis in some contexts, and his emphasis on the *differend* as a means of identifying and resisting unjust attempts at forced resolution, these philosophers insist that there is likely no such thing as *the* definitive relations of binary oppositions: life and consciousness show the nature of the transitory relations to be ‘an unremitting play of differences in social life’.<sup>483</sup> As Hegel writes in *The Science of Logic* (1812):

*It is in this dialectic...and hence in grasping opposites in their unity, or the positive in the negative, that the speculative consists. It is the most important aspect of dialectic, but...the most difficult.*<sup>484</sup>

Again echoing Fichte’s formulation, Lévi-Strauss contended that ‘mythical thought always works from the awareness of oppositions towards their progressive mediation,’ and that ‘the purpose of myth is to provide a logical model capable of overcoming a contradiction’.<sup>485</sup> Aware that he had been accused of overusing the notion of binary opposition,<sup>486</sup> Levi-Strauss again affirms Fichte’s assertion, writing that ‘thought operates through means of oppositions’:

*Binary oppositions thus might appear in very diverse modalities: symmetries (themselves of several types), contradictions, opposites, relative values, trope type figures of speech or of thought, and so on. These different modes of opposition belong to heterogeneous categories. Moreover, they never present themselves in an abstract form and, so to speak, in a pure state.*<sup>487</sup>

For Lévi-Strauss myths are narratives employing binary oppositions as logical models that allow the human mind to avoid contradictions: they are first and foremost ‘good for thinking’ – which is to say that they are a sound basis for theorizing.<sup>487</sup>

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<sup>482</sup> Julie E. Maybee, “Hegel’s Dialectics,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Winter 2016 (Metaphysics Research Lab, Stanford University, 2016), <https://plato.stanford.edu/archives/win2016/entries/hegel-dialectics/>.

<sup>483</sup> Bauman, “Claude Lévi-Strauss,” 202.

<sup>484</sup> Georg Wilhelm Friedrich Hegel, *Georg Wilhelm Friedrich Hegel: The Science of Logic*, trans. George Di Giovanni, Reprint edition (Cambridge University Press, 2015), 35.

<sup>485</sup> Lévi-Strauss, “The Structural Study of Myth,” 440, 443.

<sup>486</sup> Claude Lévi-Strauss, *The Story of Lynx* (University of Chicago Press, 1996), 185.

<sup>487</sup> Bauman, “Claude Lévi-Strauss,” 202.

#### *iv. From Nature to Culture and Back Again*

In an exemplary instance of *intergenerational oscillations*, Lévi-Strauss's protégé Philippe Descola apparently sets out to refute his mentor's 'binary oppositions' in his book *Beyond Nature and Culture*. As preparation for 'a new charter for the future in gestation,' Descola asserts that 'anthropology must shed its essential dualism and become fully monistic.'<sup>488</sup> Descola seems intent on refuting Lyotard's dismissal of grand narratives as well. As Marshall Sahlins has noted in the preface to the English edition, collapsing the distinction between nature and culture would place Descola among 'the Big-Time Thinkers of the discipline' – and so we are confronted with 'a grand project in the old style.'<sup>489</sup> Descola sees himself as engaged in a polemic against the kind of 'postmodern deconstruction' that Sahlins argues has made 'indeterminacy the preferred conclusion of cultural investigation.'<sup>490</sup>

Descola even attempts to refute the oppositions identified in the period of the Greeks, asserting that such opposition 'does not lie in things themselves; it is constructed by an arrangement that makes it possible to discriminate between them.'<sup>491</sup> Recalling Deleuze and Guattari's earlier observation that 'one does not escape binarism'<sup>492</sup> – prompting Paul Patton's insightful commentary that 'it is not a matter...of eschewing dichotomies; it is rather a matter of how they are treated'<sup>493</sup> – we must ask what it is, precisely, Descola is attempting to go 'beyond'?<sup>494</sup> As Descola scholar and interdisciplinary sociologist Desmond Fitzgerald has written:

*The title of the book promises a lot – but can it really be that, 'beyond' a fundamental binary of nature and culture, there is only one other, more fine-grained binaries (binaries 'all the way down,' I am tempted to say)? How great an advance is it to say that, beyond nature and culture, we can seek only a series of different kinds of splits...? Descola's structuralist inheritance (and the book is in constant conversation with Lévi-Strauss) is well known, but this revelation of only ever-deeper divides strikes me as a fairly mean return for the promise of the title...The philosopher Graham Harman sometimes quotes a maxim attributed to Rorty – to the effect that, every few years in philosophy, someone claims to have gone 'beyond idealism and realism,' until it turns out that 'beyond idealism and realism' is, in fact, 'idealism.'*<sup>495</sup>

Likewise, Fitzgerald argues, perhaps Descola's most singular achievement is to find that 'beyond nature and culture,' is in fact, 'nature' – which, as Fichte and Lévi-Strauss have argued, is experienced

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<sup>488</sup> Philippe Descola, *Beyond Nature and Culture*, trans. Janet Lloyd (Chicago: University of Chicago Press, 2013), xvii.

<sup>489</sup> Descola, xi.

<sup>490</sup> Descola, xi–xii.

<sup>491</sup> Descola, 77.

<sup>492</sup> Koelb and Lokke, *The Current in Criticism*, 222.

<sup>493</sup> Patton, "Notes for a Glossary," 1095.

<sup>494</sup> Des Fitzgerald, "Philippe Descola's Beyond Nature and Culture | Somatosphere," accessed November 23, 2014, <http://somatosphere.net/2013/10/philippe-descolas-beyond-nature-and-culture.html>.

<sup>495</sup> Fitzgerald.

as synthesis, but whose dynamic character is revealed with the ‘binary oppositions’ of thesis and antithesis. So aside from some meaningful, if hair-splitting, differences, for the purposes of our consideration Descola’s polemic, dialectic efforts seem, finally, to confirm – rather than to refute – the fundamental arguments of his mentor Lévi-Strauss, and of Lyotard.

Dialectic models of discourse have this essential commonality: they presume that one side is right, and the other is wrong. This common attribute is authoritatively embodied in the judicial system, in which the arguments of the prosecution and defendant are presented in a court of law, moderated by a judge, and a jury determines which side prevails. In contrast to this *either/or* paradigm of dialectical discourse is the *both/and* sociological paradigm of dialogical discourse.

#### *v. From Dialectics to Dialogics*

Dialectic and dialogic models present two clearly contrasting modes of exchange, the one by a polemic discourse of argumentation leading to agreement – antithesis and thesis leading to a synthesis – the other by allowing for a polemic exchange of ideas and views in an open-ended way, allowing for difference to be maintained. Both have pedagogical use, but modern society is much better at organizing dialectical argument – an essentially competitive model based on the polemic force of skilled debate – than it is at facilitating dialogical discussion, for which the skills of listening and cooperation are required.<sup>496</sup>

Exemplary of this, and highlighting the affinity in Lévi-Strauss’s thought with our emphasis on the usefulness of analogical thought, Alan Dundes argues that while Lévi-Strauss’s methodology ‘wears the trappings of structuralism’ his actual method is ‘an idiosyncratic form’ of the comparative method, writing that “although Levi-Strauss is...known as a structuralist, the empirical fact is that he is much more of a comparativist than a structuralist.”<sup>497</sup> Like Lévi-Strauss, who sought to identify the relations between binary oppositions – rather than determining which will prevail – Dundes points out ‘that the presence of binary opposition’ in narrative ‘is hardly a new idea,’ citing Danish folklorist Axel Olrik (1864-1917) who had written in 1908, “This very basic opposition is a major rule of epic composition: young and old, large and small, man and monster, good and evil.”<sup>498</sup> Among Lévi-Strauss’s contributions to the inventory of binary opposites, and relevant to our purpose, are the *bricoleur* and the *engineer*.<sup>499</sup>

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<sup>496</sup> Richard Sennett, *Together: The Rituals, Pleasures and Politics of Cooperation*, 1st ed. (New Haven, CT: Yale University Press, 2012), 24.

<sup>497</sup> Dundes, “Binary Opposition in Myth: The Propp/Levi-Strauss Debate in Retrospect,” 41.

<sup>498</sup> Axel Olrik, “Episke Love i Folkedigtningen,” *Danske Studier*, no. 5 (1908): n. as published in; Axel Olrik, “Epic Laws of Folk Narrative,” in *The Study of Folklore*, ed. Alan Dundes, trans. Jeanne P. Steager (Englewood Cliffs, N.J.: Prentice-Hall, 1965), 135; Dundes, “Binary Opposition in Myth: The Propp/Levi-Strauss Debate in Retrospect,” 48.

<sup>499</sup> Claude Lévi-Strauss, “The Science of the Concrete,” in *The Savage Mind*, trans. George Weidenfeld (Chicago: The University Of Chicago Press, 1966).

The *bricoleur* – a term derived from the French verb *bricoleur* (meaning ‘to putter about’) – specializes in nonlinearity and is essentially an artist, a designer in the Greek etymological sense: working with materials at hand and revealing implicit qualities of distinct elements, relating them in an *ad hoc*, bottom up way.<sup>500</sup> The term *bricolage* made its way into the English language in the 1960’s – largely thanks to the translation and popularization of Lévi-Strauss’s work – and has come to mean, in both French and English, the equivalent of the phrase ‘do-it-yourself.’<sup>501</sup>

The *engineer* is closer to a scientist or planner, looking for comprehensive solutions and developing linear, sequential approaches to implementation. These oppositional figures have different but related roles in projects, as in society at large, as Lévi-Strauss writes:

*The difference is...less absolute than it might appear. It remains a real one, however, in that the engineer is always trying to make his way out of and go beyond the constraints imposed by a particular state of civilization while the ‘bricoleur’ by inclination or necessity always remains within them. This is another way of saying that the engineer works by means of concepts and the ‘bricoleur’ by means of signs. The sets which each employs are at different distances from the poles on the axis of opposition between nature and culture.*<sup>502</sup>

In this way, Lévi-Strauss establishes a framework within which I propose we might establish two distinct but complementary narratives – as we have already done with the *biological analogy* and the *musical analogy* – adopting the desirable qualities of both ‘grand narratives’ and ‘nonlinear narratives’ while addressing the some of their weaknesses. First we will conclude this section by addressing the *bricoleur* as the protagonist of a bottom up, individualist narrative in *1.3.3\_Do It Yourself*. We will then proceed in a dialogical way to explore the relationship between the *bricoleur* and the *engineer* through the interdisciplinary theme of *park systems* in the next section, *2\_Civic Design*.

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<sup>500</sup> “English Translation of ‘Bricoler’ | Collins French-English Dictionary,” accessed September 2, 2017, <https://www.collinsdictionary.com/dictionary/french-english/bricoler>.

<sup>501</sup> “Bricolage | Definition of Bricolage by Merriam-Webster,” accessed September 2, 2017, <https://www.merriam-webster.com/dictionary/bricolage>.

<sup>502</sup> Lévi-Strauss, “The Science of the Concrete,” 13.

### 1.3.3 Do It Yourself – From Individual Sovereignty to Civic Design

*This chapter presents a bottom up narrative based on Frank Lloyd Wright's shift from prefabricated housing strategies to self-build methods, from houses to communities. A dialogic narrative calling for both individual initiative and cooperative action - from industrial products to local, site-specific modes of production.*

*Most can raise the flowers now,*

*For all have got the seed.*

- Tennyson<sup>503</sup>

#### *i. Evolution of the Textile Block*

With the Usonian Automatic construction system Frank Lloyd Wright provided citizens of Usonia – Wright's preferred term for a culturally advanced North America – with the means of 'doing it themselves', of building their own homes and communities. [fig.1\_wright\_automatic\_axo] Though designing ways to provide moderate-cost housing on a large scale had preoccupied Wright for years—and resulted in his invention of numerous construction systems—the Usonian Automatic would be different: almost open source in its sensibility, it was explicitly intended to allow anyone to build their own buildings, of their own earth, on their own ground. The axonometric drawing, made by Taliesin apprentice David Dodge, illustrates how the concrete blocks, cast by the owner of earth taken from the site itself, are reinforced with steel rods run through vertical and horizontal joints – woven together like a textile. It was first published in *The Natural House* (1954), where Wright asserts that the Usonian Automatic is '*...becoming to a free society because, though standardized fully, it yet establishes the democratic ideal of variety – the sovereignty of the individual. A true architecture may evolve.*'<sup>504</sup> This drawing is not a detail of a building, but a synopsis of a system - it is a simplified diagram made to illustrate the essential principles of the system to the public.

What does it mean to draw a system rather than a building? A clue might be found in Wright's statement that he hopes 'a true architecture may evolve' from this system. It was a system he hoped would evolve as it was taken up by individual initiative and cooperative action, cumulatively yielding a more democratic civic fabric – and a more beautiful one. With the Usonian Automatic, Wright created a system that he asserts is nothing less than a political instrument for social equity.

While working to complete the Imperial Hotel in Tokyo (1913-22), Wright had occasionally returned to Los Angeles for ongoing projects. Here he began to conceive of another approach to houses, stating that his objective was to create a 'total system' of concrete:

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<sup>503</sup> Edmund Clarence Stedman, ed., *A Victorian Anthology, 1837-1895* (Cambridge: Riverside Press, 1895), 389 [note: poem fragment of Tennyson cited by Wright in the opening of his second to last book, 1957's *A Testament*.].

<sup>504</sup> Frank Lloyd Wright, *The Natural House* (New York: Horizon Press, 1954), 205.

*Concrete is a plastic material – susceptible to the impress of imagination. I saw a kind of weaving coming out of it. Why not weave a kind of building?...steel for warp and masonry units for woof in the weaving...I was getting interested again...<sup>505</sup>*

In the attempt to ‘do away with skilled labor’ while achieving beauty, ‘lightness and strength’, inexpensive yet richly patterned concrete blocks are made with earth taken from the building site, expressive of its natural color and texture. Departing from the earlier *American System-Built* approach consistent with Fordist assembly line methods, where wood building components were factory-ordered, here the textile blocks were made on site by ‘common labor’. Describing how ‘that despised outcast of the building industry – the concrete block’ would be taken ‘out from underfoot’, he vows to ‘make it live as a thing of beauty – textured like the trees’:

*Yes, common labor could do it all...Standardization was the soul of the machine, and here I was the Weaver taking it as a principle and knitting a great future with it...here at last was weaving in building that could go on forever and not go wrong for anyone...<sup>506</sup>*

The first projects built with these blocks were a series of houses in Los Angeles,<sup>507</sup> where concrete responds better than wood to the incessant sun, and is fireproof. His ‘textile block’ system, as Wright came to describe it, also has the advantage of being a ‘mono-material’ system with democratic implications, capable of yielding projects of any size – whether house, civic structure or infrastructure. In these early houses textile block retaining walls are stitched across hilly sites, serving multiple functions like roadways for access and water catchment, and terraced gardens for soil conservation and a cooling microclimate. *[fig.2\_ennis view]*

*Textile block* is a telling phrase, and the analogy of *weaving* is a conceptual touchstone for Wright - from the scale of the city to the scale of the building element the notion of weaving informed his design thinking, as he wrote in an unpublished text from 1931:

*‘...human tapestry shot through with threads of gold – as light gleams in it whenever truth was touched – where love rose worthy of noble selfhood – where life triumphed over death – where faith justified defeat...To gather together the threads of man’s accomplishments in science, his discoveries in the realm of materials, his dawning sense of his own dignity and worth as an individual – and pattern all to be woven by his own new loom into native fabric of native stuff, for and by himself...To design for him and weave with him better patterns for the framework of the high thing that truly would be what...he now calls civilization.’<sup>508</sup>*

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<sup>505</sup> Wright, *An Autobiography*, 1943, 234–35.

<sup>506</sup> Wright, 241–46.

<sup>507</sup> Robert L. Sweeney and David G. DeLong, Wright in Hollywood: Visions of a New Architecture, annotated edition edition (New York, N.Y. : Cambridge, Mass: The MIT Press, 1994), 1–7.fn. As Robert Sweeney has shown, Wright’s experiments in concrete block followed his son Lloyd’s Bollman house of 1922, and the first house he built - the Millard house - is not, by definition, a textile-block house.

<sup>508</sup> Frank Lloyd Wright, “Untitled (Manuscript 2401.103a - ‘for a New Book’)” (unpublished, 1931), 2.

## *ii. Community Making*

In 1932 Wright founded the Taliesin Fellowship, a school and community, and in 1934 he and his apprentices set about making the models for Broadacre City – taking individual houses and civic infrastructure as the basis for *wearing* the city. The following year Wright unveiled a new system of wood construction for moderate-cost Usonian houses, featuring a wall system of ‘sandwich panels’ – board and batten sheathing a core of plywood. [*fig.3-5\_jacobs house*] Apprentices, having learned the standard details in the drafting room, were deployed to supervise the construction of these houses across the nation – it was by no means a do-it-yourself proposal. [*fig.6\_standard details*] As Wright himself later wrote, “*As a matter of course a home like this is an architect’s creation. It is not a builder’s nor an amateur’s effort. There is considerable risk in exposing the scheme to imitation or emulation.*”<sup>509</sup> But as costs for wood and skilled labor continued to rise, Wright soon expressed concern that ‘Usonian forests’ were endangered by overuse, writing “wood grows more precious as our country grows older.”<sup>510</sup>

In a 1938 address to the Federal Architects’ Association in Washington D.C. Wright boldly stated, “I don’t build a house without predicting the end of the present social order.”<sup>511</sup> Commissioned to design the campus at Florida Southern College that same year, he returned to the textile-block system with renewed purpose. [*fig.7\_fsc-plan*] Again Taliesin apprentices were sent to instruct the Florida students in building with the block system, and in a democratic synthesis of education and participatory labor – at a civic scale – the students helped to build their own campus. The clients themselves had become the builders. [*fig.8\_fsc-construction*]

Prompted by the need for mass housing after WWII the system was reinvented as Usonian Automatic in 1949, eventually simplified to allow families to build their own homes [*fig.9\_tonkens house-construction*] from only twelve standard block shapes. [*fig.10\_automatic-standard details*] Wright explained that ‘automatic’ meant that homeowners could, and did, build these houses themselves. [*fig.11\_tonkens house*] In a subsequent article criticizing the mass housing developments then being built, he wrote,

*Animals are penned or stabled. Humans are ‘housed!’...We Americans planted here on earth a sweeping assertion of man’s spirit - the ‘sovereignty of the individual’...it is important now to take the factory to the house...the right of every man [is] to be true to his better self as himself, free to dream and build...Recognize the machine as the appropriate magnificent tool of pre-fabrication to be used for man, not on him.*<sup>512</sup>

For Wright individual houses were the building blocks of cities and thus of political and social realities. With the Usonian Automatic the factory had come home – homeowners could now do it themselves.

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<sup>509</sup> Wright, *The Natural House*, 89.

<sup>510</sup> Frank Lloyd Wright, *Frank Lloyd Wright on Architecture: Selected Writings (1894-1940)*, ed. Frederick Gutheim (New York: Grosset & Dunlap, 1941), 113.

<sup>511</sup> Robert Twombly, *Frank Lloyd Wright: His Life and His Architecture* (John Wiley & Sons, 1987), 261.

<sup>512</sup> Frank Lloyd Wright, “Away With The Realtor,” *Esquire Magazine*, October 1958.

### *iii. From Parks to Park Systems*

In *Modern Architecture, Being the Kahn Lectures for 1930*, the publication of his lectures at Princeton University, the architect criticized as dangerous to life the ‘acceleration due to the skyscraper’, reflecting that machine power and the standardization it brings threaten to diminish rather than increase individual quality of life. The sixth and final chapter - titled ‘The City’<sup>513</sup> – is illustrated by a single image bearing the caption, ‘Small Town Hall, plastered frame, 1912-1913.’ [*fig.12\_town hall*] In fact the project is one of the *American System-Built* homes of 1915-17, and not a ‘Town Hall’ at all.<sup>514</sup> Nevertheless, it is interesting that Wright illustrates ‘The City’ with an individual house, and that this house is given a civic function. The date given the project has another interesting civic association – 1912-13 were the years the City Club of Chicago held an international competition for a neighborhood design, to which Wright submitted a remarkable entry, [*fig.13\_city club view*] an early prototype for Broadacre City. The formal scheme is virtually identical: a square field edged with a linear transit spine, commerce bordering its main roads, a latticework interpenetrated by housing, and its civic functions clustered within a linear park system. Woven through the existing urban grid as an armature, the city is revealed as both aggregation and composition, nature and culture, bottom up and top down. Wright’s nuanced design attributed a civic dimension to housing, encouraging individual initiative while yielding civic structure.

In *The Art and Craft of the Machine* (1901),<sup>515</sup> Wright had already observed, ‘...you may see at a glance how organic the machine has become, how interwoven it is in the warp and woof of our civilization, its essential tool indeed, if not the very framework of civilization itself.’<sup>516</sup> Arguing that the machine was the ‘great forerunner of democracy’ Wright sought to instrumentalize architectural production - the machine would be a labor saving tool to bring greater beauty, variety and dignity to civilization. The role of the architect was to champion the use of the machine to such humane ends.

*The Art and Craft of the Machine* was initially presented at the invitation of Jane Addams at Hull-House - a multi-faceted civic institution central to the settlement house movement - and the perceptive summary that was printed in the *Chicago Tribune* (in advance of the event, Wright surmised by Addams herself<sup>517</sup>) equally describes his ambition for the Usonian Automatic some fifty years later: “this new idea...says that there should be neither slave nor slavelike products. It asserts instead that machine production...can be and should be genuinely artistic. It would seem that to the phrase and ideal, ‘Art and Labor,’ must now be added...‘Art and the Machine.’”<sup>518</sup>

In the essay itself Wright assents to Victor Hugo’s assertion that the printing press had superseded architecture, as represented by Notre Dame cathedral, in making knowledge publicly

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<sup>513</sup> Wright, *Modern Architecture*, 101.

<sup>514</sup> Levine, *The Urbanism of Frank Lloyd Wright*, p.406, fn.51.

<sup>515</sup> Wright, “The Art and Craft of the Machine.”

<sup>516</sup> Wright, 90.

<sup>517</sup> Frank Lloyd Wright, *A Testament*, First Edition (New York: Horizon Press, 1957), 163.

<sup>518</sup> “Chicago Tribune, ART AND THE MACHINE (March 4, 1901).”

accessible – citing Hugo’s poetic description of the emancipated pages of the printing press blowing in the wind like the birds leaving the cathedral at dawn. For architecture to remain relevant it would have to learn the lesson of the printing press, ‘the first great machine, after the great city’. As the printing press yielded knowledge, his system of mechanical forms yielded textile blocks. By championing the democratic accessibility of architecture, Wright sought to transform the city itself into a more civic fabric.

#### *iv. Little Papers, Little Forums*

In 1941 Wright founded the *Taliesin Square-Paper*, ‘*A Nonpolitical Voice from our Democratic Minority*’, as a platform to express his political views. This was one of several ongoing series authored and printed by apprentices of the Taliesin Fellowship at Taliesin Press since 1934. Frank Lloyd Wright was an ardent pacifist, supporting several Taliesin apprentices imprisoned during WWII as conscientious objectors. In a 1945 talk at an exhibition of Broadacre City, while some of those print-making apprentices were still in prison, he called for the creation of more such ‘little papers’:

*Let them ‘cut loose’. Only make sure that they are of A1 liberal democratic quality; that they are really grass roots stuff or better...God knows we are so very tired of being spoon-fed by this great newspaper corporation now so compactly organized for profit that it will never let anything get through that is inimical to its own interests or that has any reflection to cast upon ‘vested’ interests in general. Let’s once again hear from the American people.<sup>519</sup>*

In the same talk he also advocated ‘little forums’, arguing that every city should have ‘one or two or three’:

*Why don’t you build such little forums? Build one...down there in the labor section where the labor fellows could get up and sass away at each other and their bosses sass back as you know they are doing right now in the papers. They could do it better down there in the forum...We need to educate our people to take a big hand in this thing we call democracy. We must talk it out. To do it ourselves we must get together to express our own ideas. Isn’t that in the very spirit of democracy?<sup>520</sup>*

Wright practiced what he preached – just as the Taliesin Press publications exemplified ‘little papers’, Taliesin and Taliesin West provided ‘little forums’ for their nearby communities. Apprentices ran the press, organized the forums, and - as at Florida Southern College - built the campuses.

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<sup>519</sup> Frank Lloyd Wright, “Untitled (Manuscript 2401.177 - Address at Milwaukee Art Institute, Talk No. III)” (unpublished, December 5, 1945).

<sup>520</sup> Wright.

In 1954, the year David Dodge's axonometric drawing was published in 'The Natural House', Wright suggested that all the apprentices should create Usonian Automatic designs – these design assignments were submitted collectively in December of that year, and are still to be found in the archive. One apprentice built a variation of the Usonian Automatic on one of the existing tent sites in the desert campus. [fig. 14\_apprentice shelter] Dodge was soon motivated to build his own shelter, as well, and Wright suggested that he undertake a survey of existing sites so as to determine the best location for his shelter. This survey was undertaken by Dodge as a labor of love, documenting with precision of detail the diverse variations on the 10 foot by 10 foot standard tent sites – square or triangular, showing site-responsive adjoining terraces and staircases – and revealing the underlying logic of their geometry: triangular clusters of adjacent sites, 100 feet apart, spanning desert *washes* whose seasonal flows and cooling microclimate provided the logic of situating these little communities-of-three there.

Thus among the little-known drawings for the campus at Taliesin West is this *Plan of Fellowship Tents* of 1955. [fig. 15\_fellowship tents] It is fitting to conclude with this drawing, having begun with the Usonian Automatic axonometric drawing – both made by Dodge at Wright's suggestion – suggesting as they do the cumulative, varied and nonlinear character of the relationship between assertions of individual sovereignty and aspirations for civic design.

Wright's work has often been characterized as 'radical' – and renewed assessment of his output confirms it. In addition to the construction systems discussed here, Wright worked with numerous systems of his own design and those of others, including pragmatic hybrid projects combining his own systems and standard materials, and curious experiments like his 1957 design for a community of houses made of Fiber-thin, a U.S. Rubber product, that could be "...carried to [their] destination in a station wagon and...inflated with a ventilating blower."<sup>521</sup> As he himself wrote, "Might not the spirit of creative art, desperately needed by man, lie in the proper use of the radical new technologies of our times, and so arise?"<sup>522</sup>

Speaking generally, the existing literature on the history of pre-fabrication and of kit houses is tremendous, and a contemporary review of Wright's work can make an interesting contribution to it for at least two reasons. First, for the sheer diversity of his efforts over a prolonged period – as he himself said when first developing the textile block, "*A pity were the United States to have only one arrow to its bow, or neglect indigenous riches at any point.*"<sup>523</sup> Second, Wright's relentless ambition to ennoble both individual sovereignty and civic design through architecture - his conviction that he can, and that this is, in fact, the 'center-line of future action in the realm of art'<sup>524</sup> - is radical indeed.

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<sup>521</sup> "Frank Lloyd Wright's Community of 'Fibre-Thin' Homes," *Indianapolis Star*, April 7, 1957.

<sup>522</sup> Wright, *A Testament*, 84.

<sup>523</sup> Wright, *An Autobiography*, 1943, 235.

<sup>524</sup> Wright, *A Testament*, 199.

Wright was keen to point out that ‘radical’ means ‘from the root’,<sup>525</sup> and described his vision of the textile block house ‘...as a kind of tree itself standing there at home among the other trees in its own native land...’<sup>526</sup> Current research in forest ecology shows that diverse species of trees not only exchange information through their roots, assisted by *mycorrhizal* networks in the soil, but materials as well – indicating that about half of the carbon in these trees was supplied by other trees in their community.<sup>527</sup> Beyond mere analogy, the emerging discipline of sociobiology suggests that what is true for plant communities is also true for humans – it is by the delicate weaving of roots that resilient communities are established.

*Do It Yourself* is thus a call to both individual initiative and to cooperative action, acknowledging that from the tapestry of our lives a civic fabric is also woven – between public and private, park and garden, large scale and small.

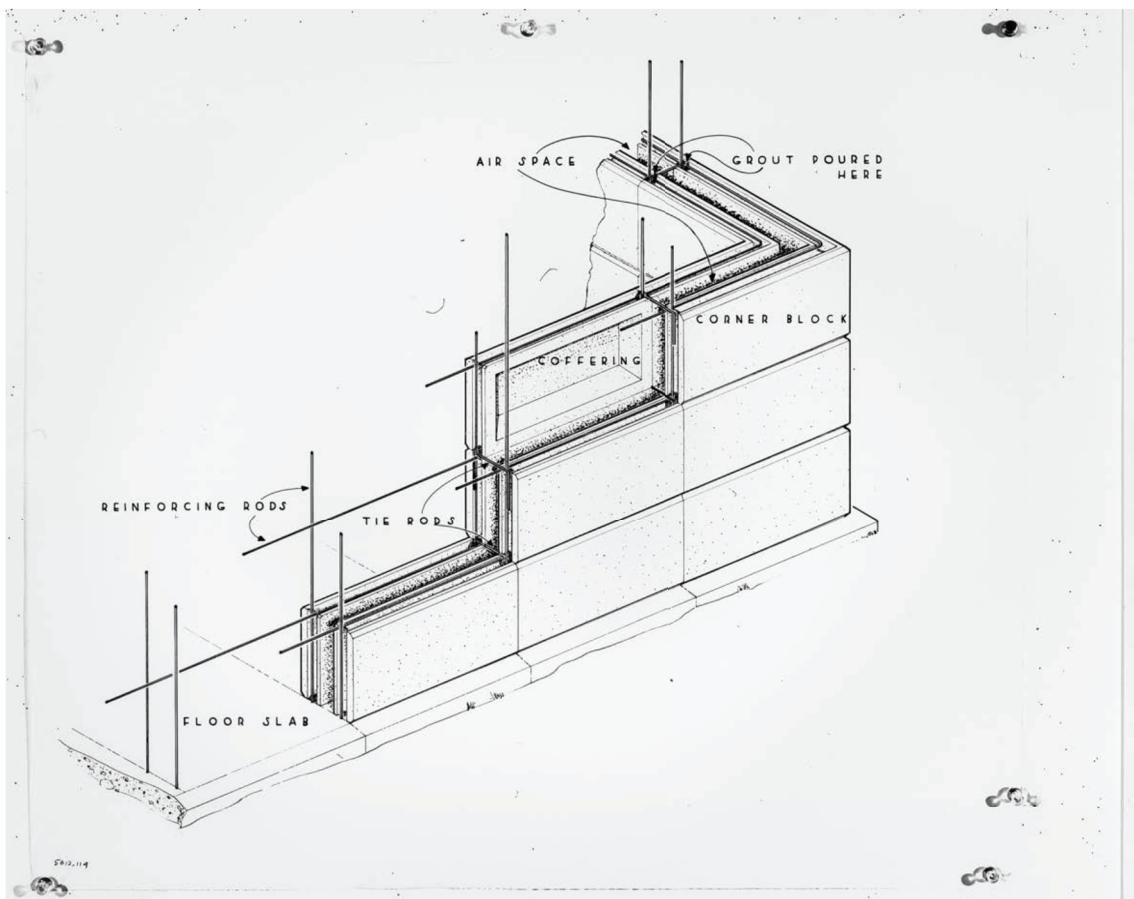
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<sup>525</sup> Frank Lloyd Wright, *The Living City* (New York: Horizon Press, 1958), 325.

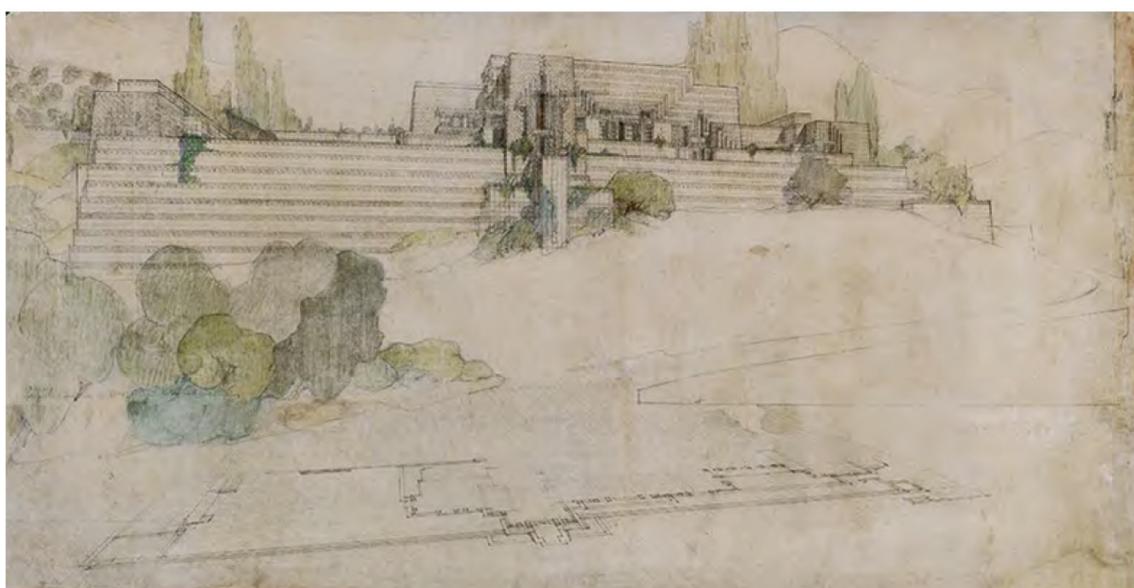
<sup>526</sup> Wright, *An Autobiography*, 1943, 245.

<sup>527</sup> Tamir Klein, Rolf Siegwolf, and Christian Körner, “Belowground Carbon Trade among Tall Trees in a Temperate Forest,” *Science* 352, no. 6283 (April 15, 2016): 342–44.

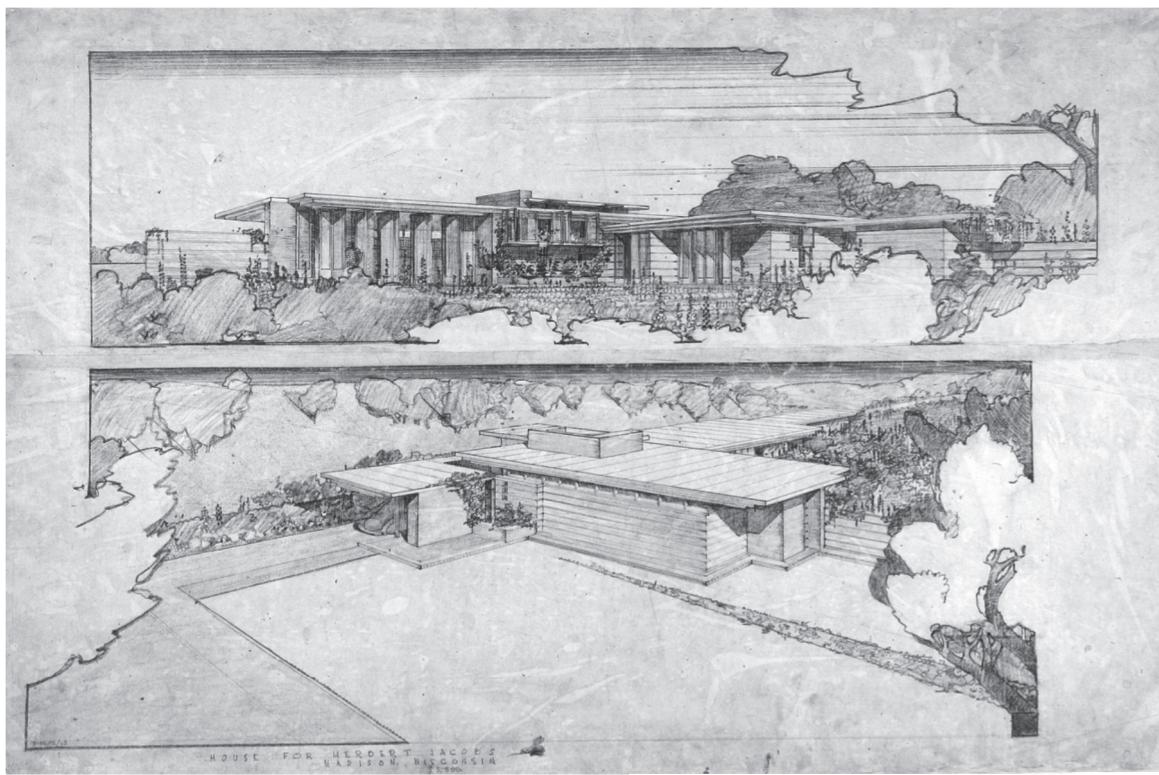
### 1.3.3 Do It Yourself - *illustrative figures*



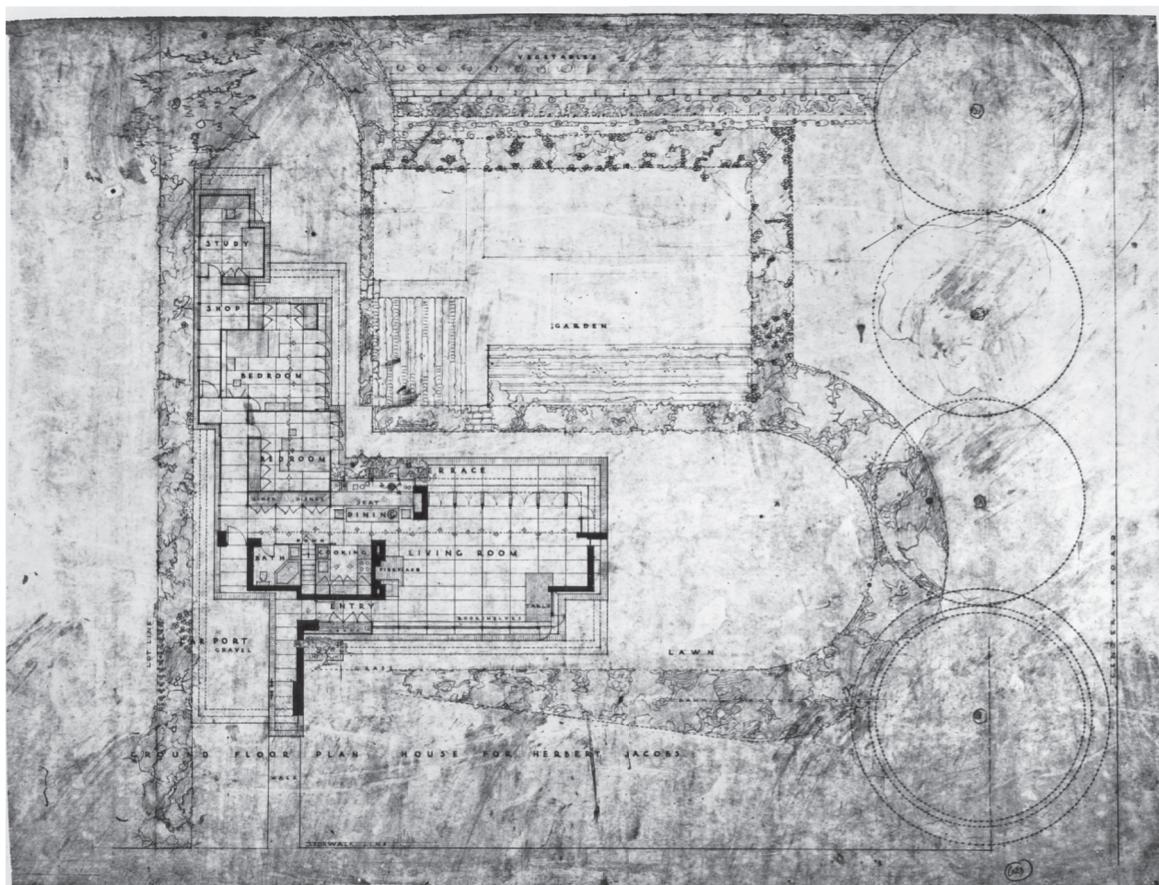
[fig.1\_Usonian Automatic axonometric (1953)] Drawn by David Dodge. FLLW 5612.114



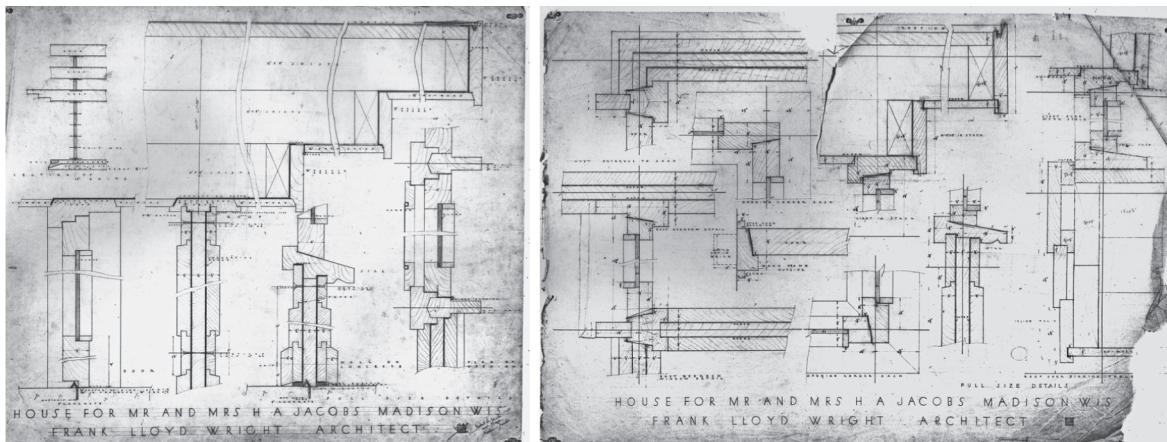
[ill.2\_Ennis House perspective view, Los Angeles (1924)] FLLW 2401.003



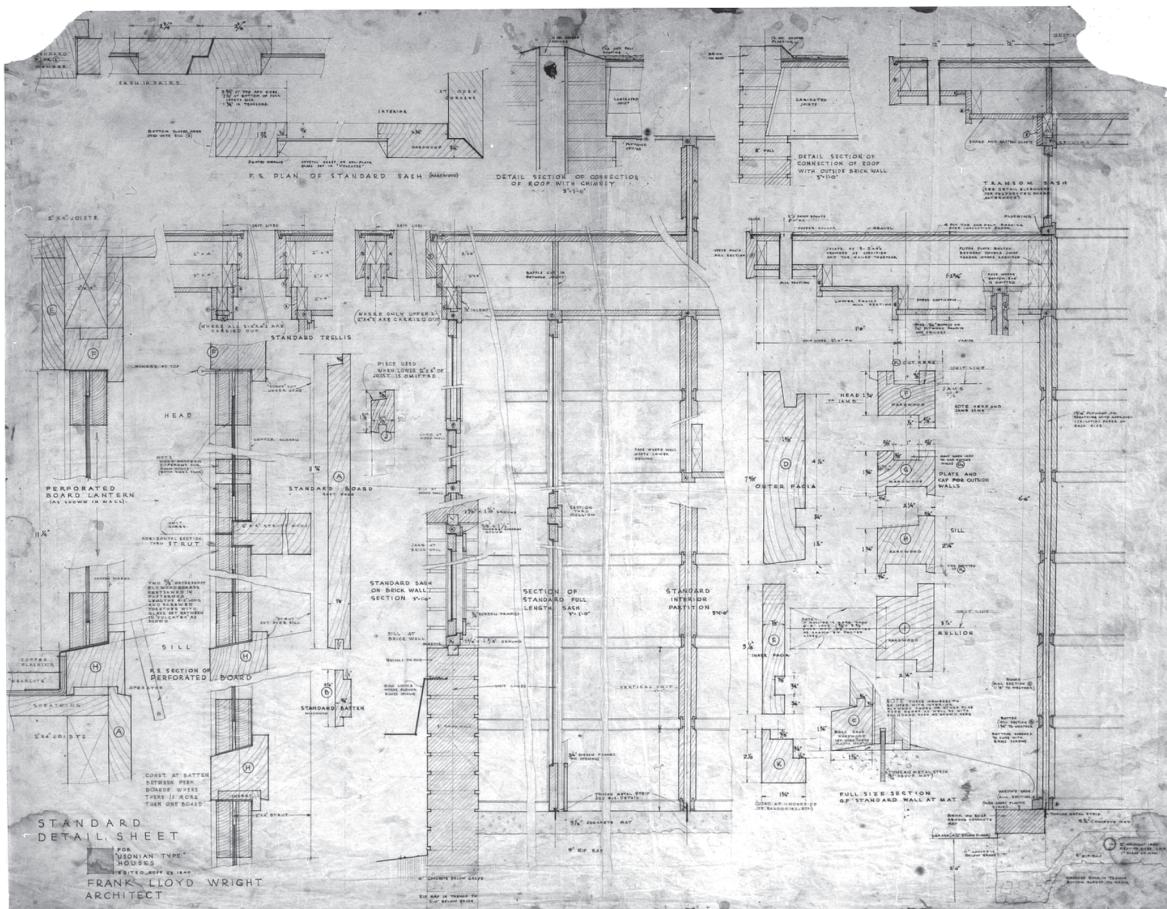
[fig.3] Jacobs House views, Madison, Wisconsin (1937) FLLW 3702.002/3



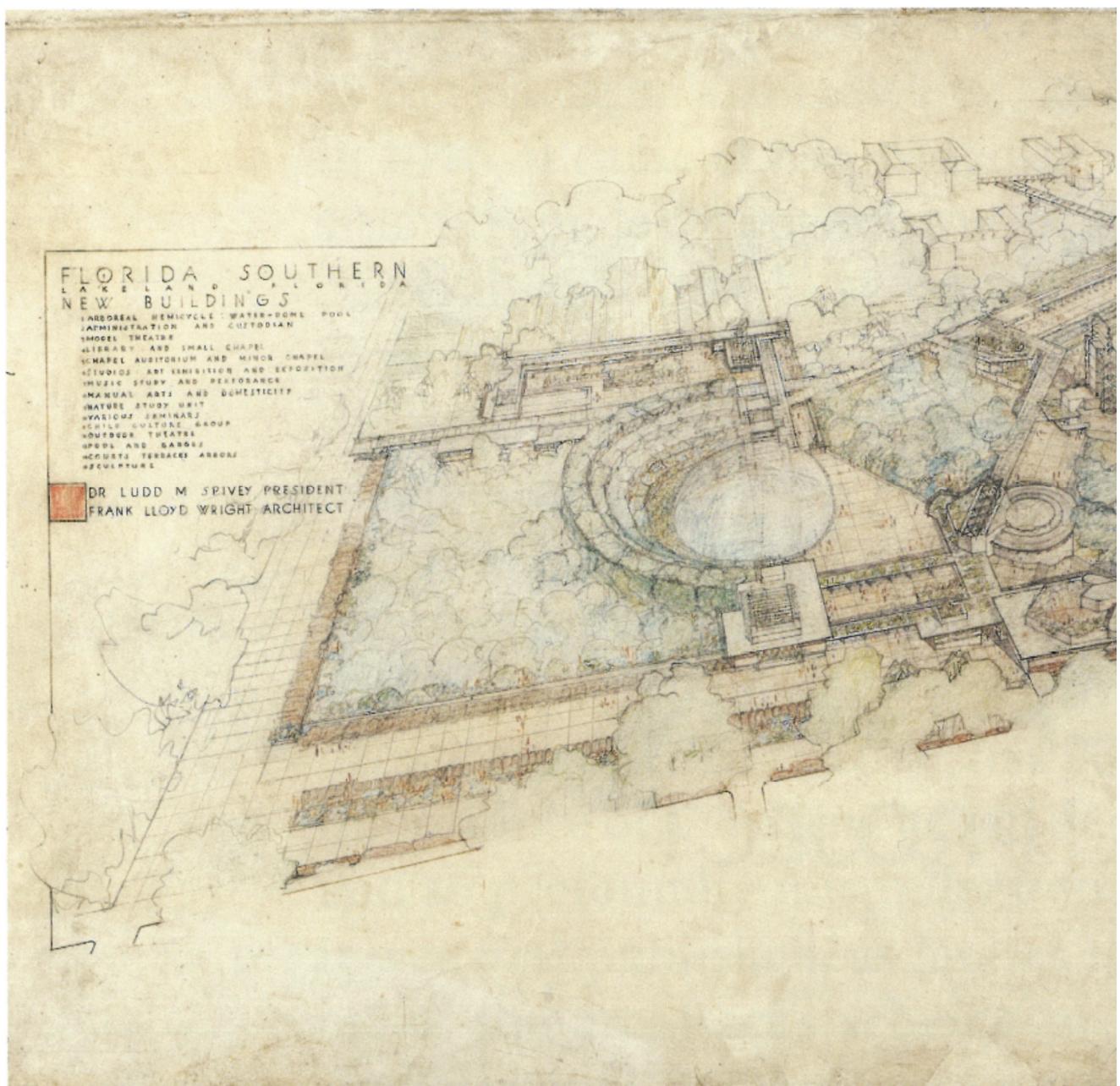
[fig.4] Jacobs House plan, Madison, Wisconsin (1937) FLLW 3702.005



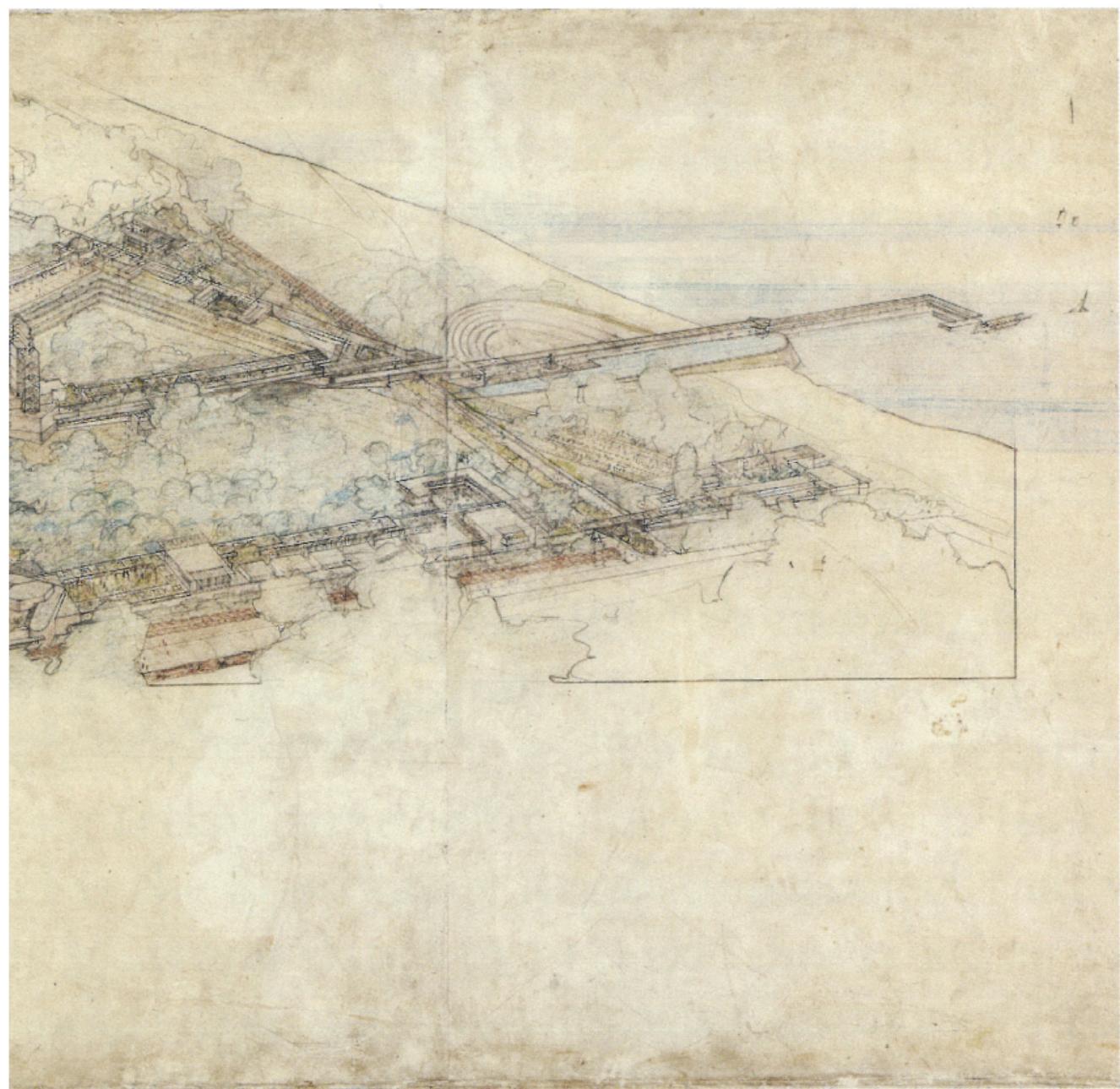
[fig.5\_Jacobs House detail sheets, Madison, Wisconsin (1937)] FLLW 3702.018/024



[fig.6\_Usonian House, Standard Detail Sheet (1938)] This is one of nearly a dozen similar drawings evidencing the pedagogical function of the standard details at Taliesin. FLLW 3813.011

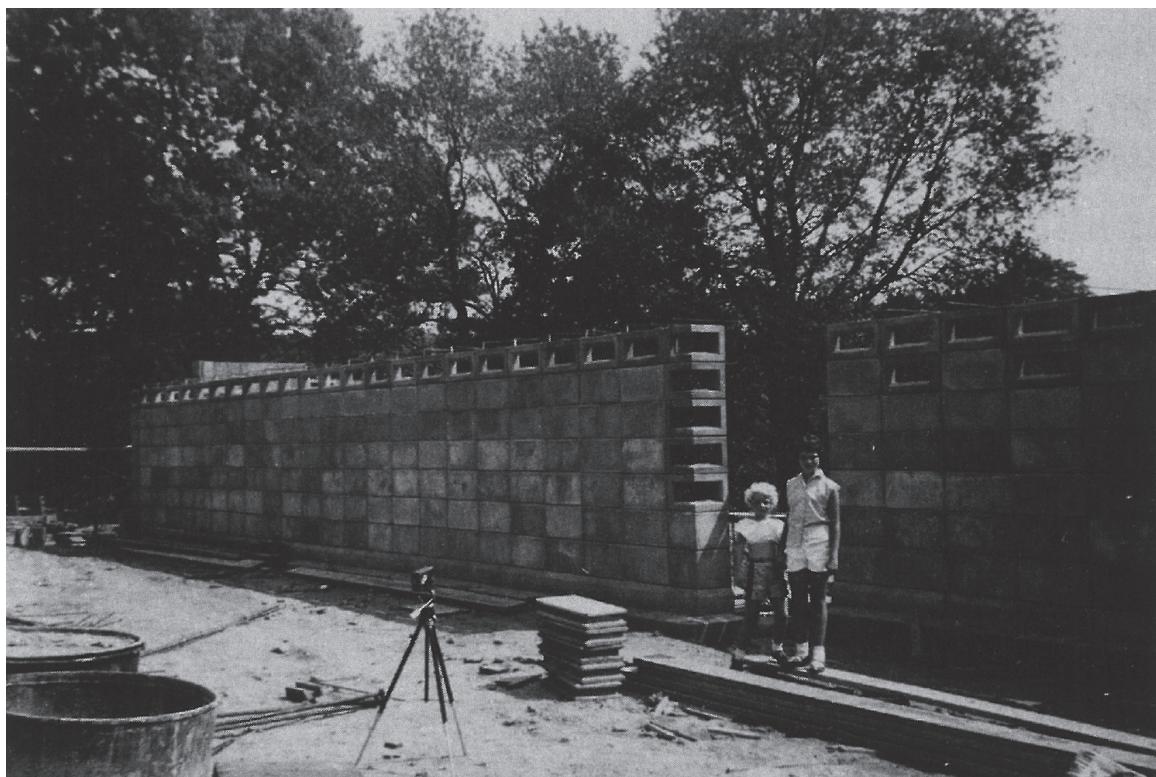


[fig.7\_Florida Southern College aerial perspective, Lakeland (1938)] FLLW 3805.002

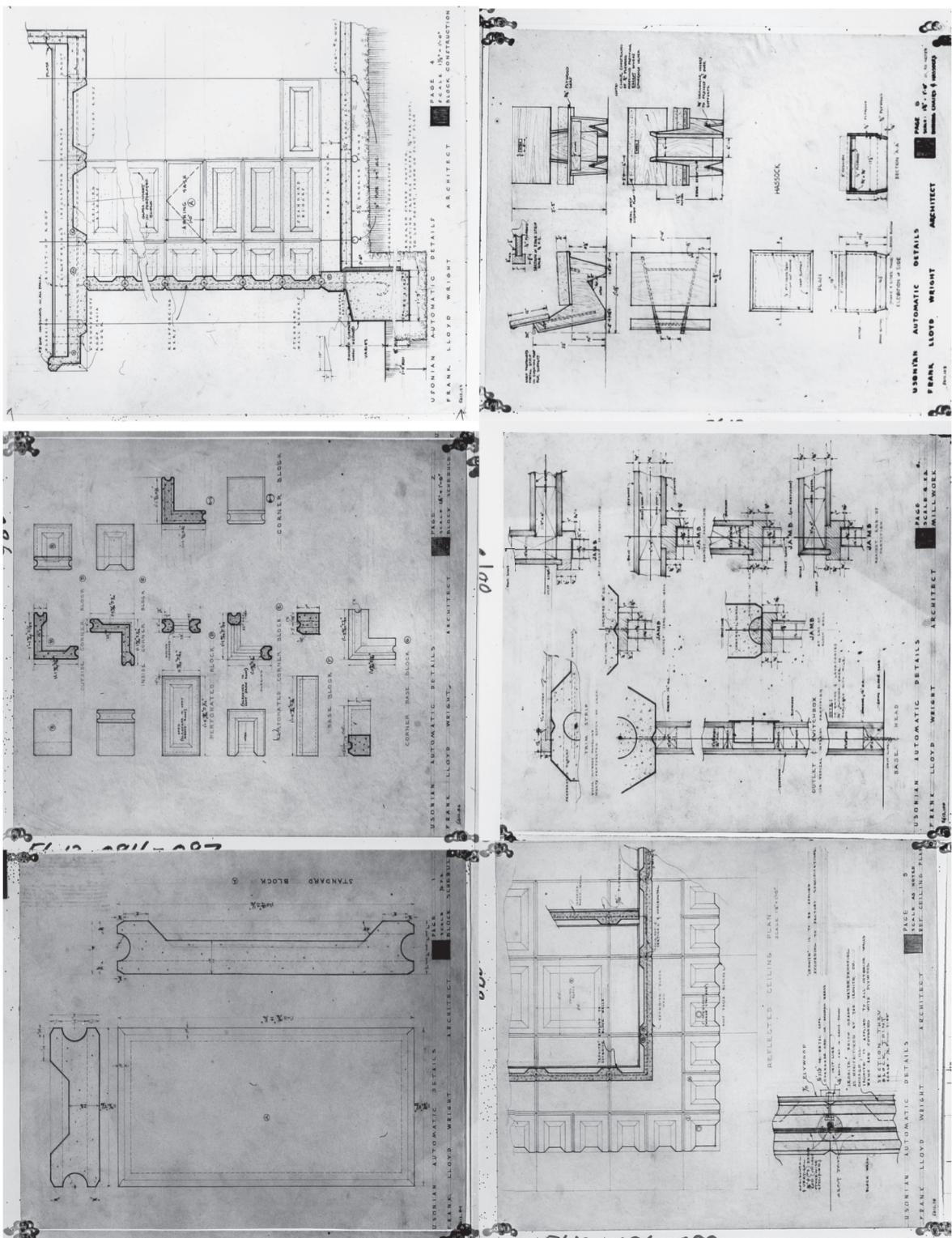




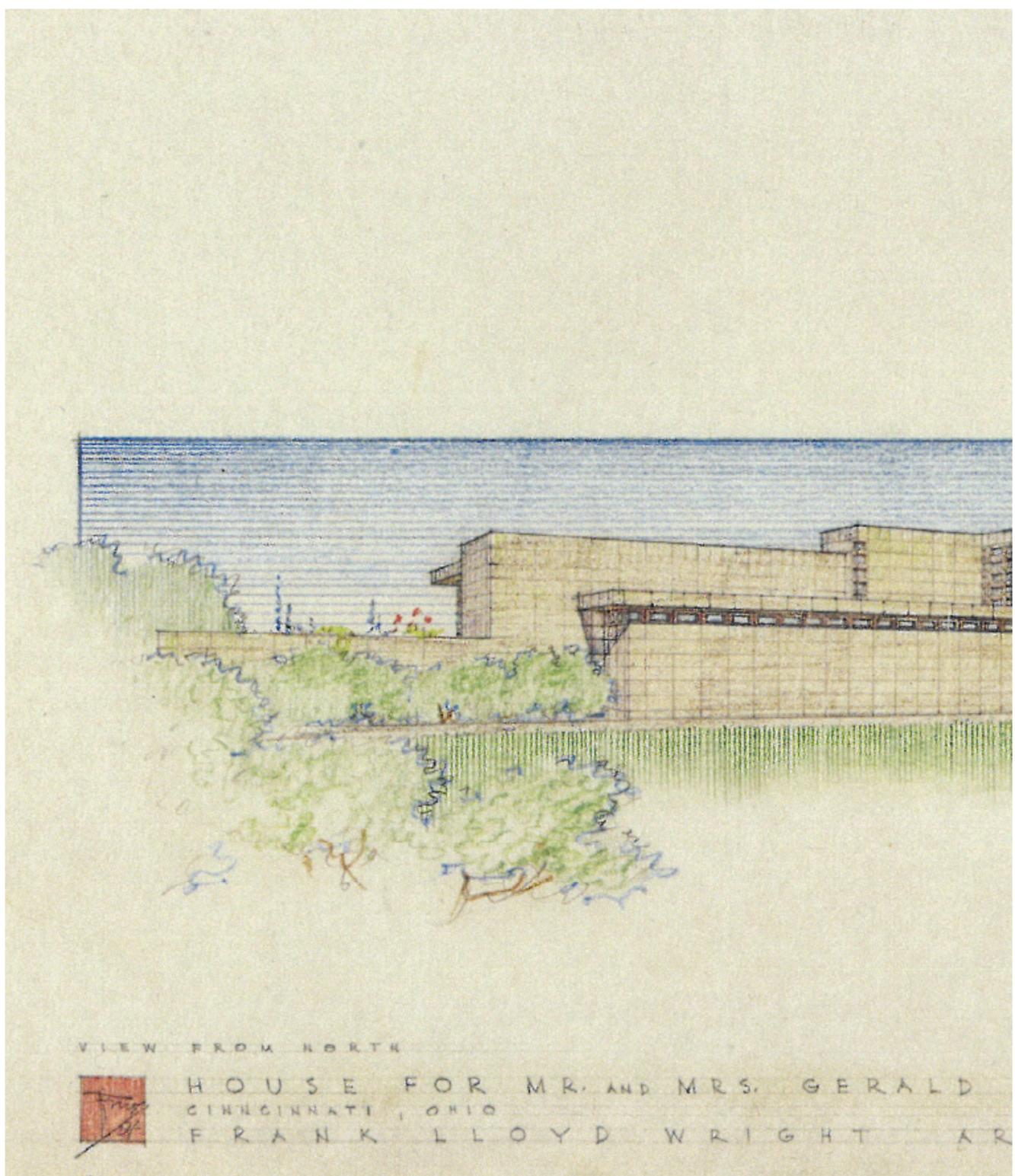
[fig.8\_Florida Southern College construction, Lakeland (1938)] This photo shows a team of student laborers building the lower cast block walls of the Pfeiffer Chapel. FLLW 3816.045



[fig.9\_Tonkens House construction, Cincinnati (1955)] The Tonkens children on site. FLLW 5510.005



[fig.10\_Usonian Automatic standard details (1956)] FLLW 5612.084, 0093, 098, 100, 102, 103

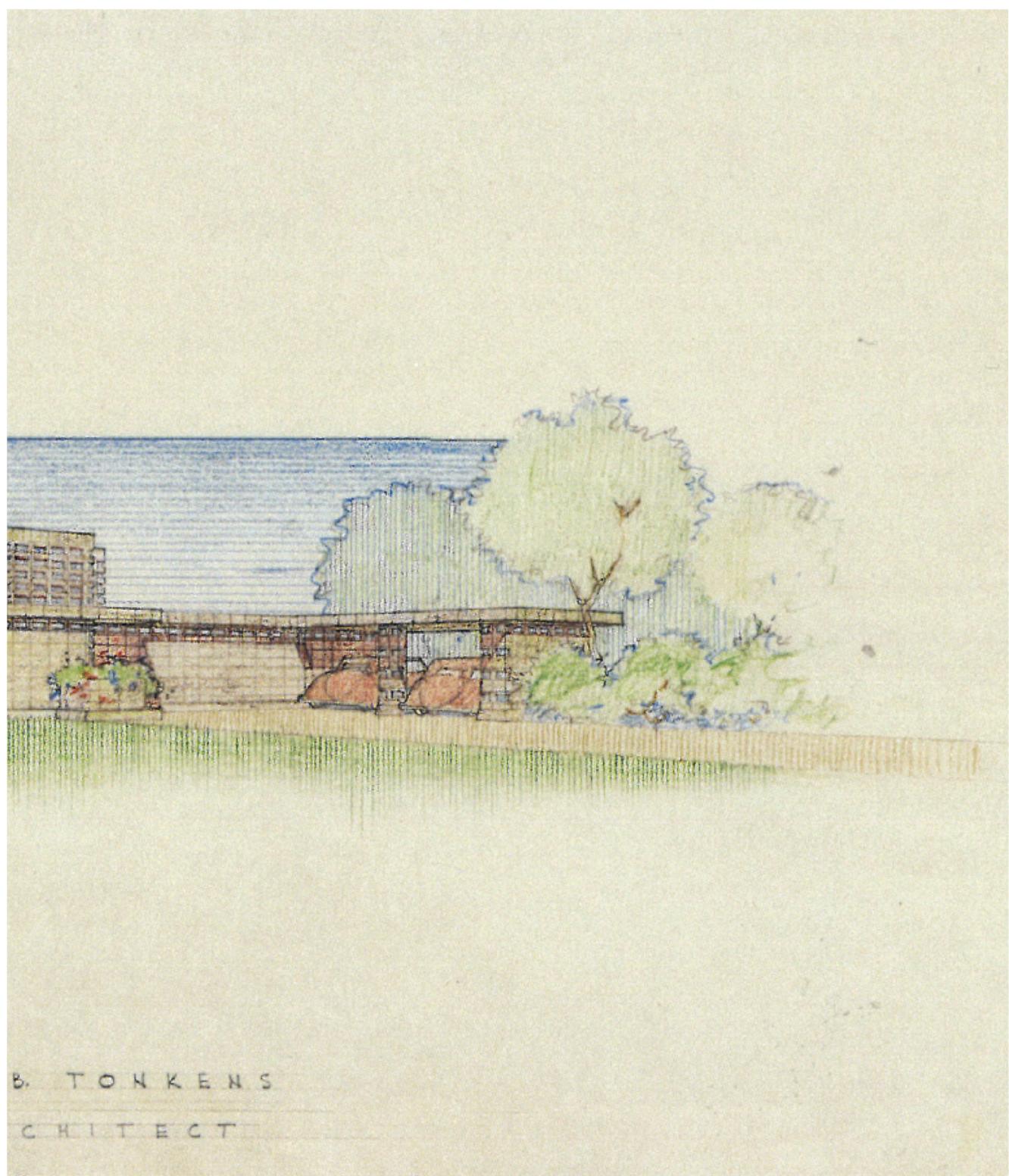


VIEW FROM NORTH



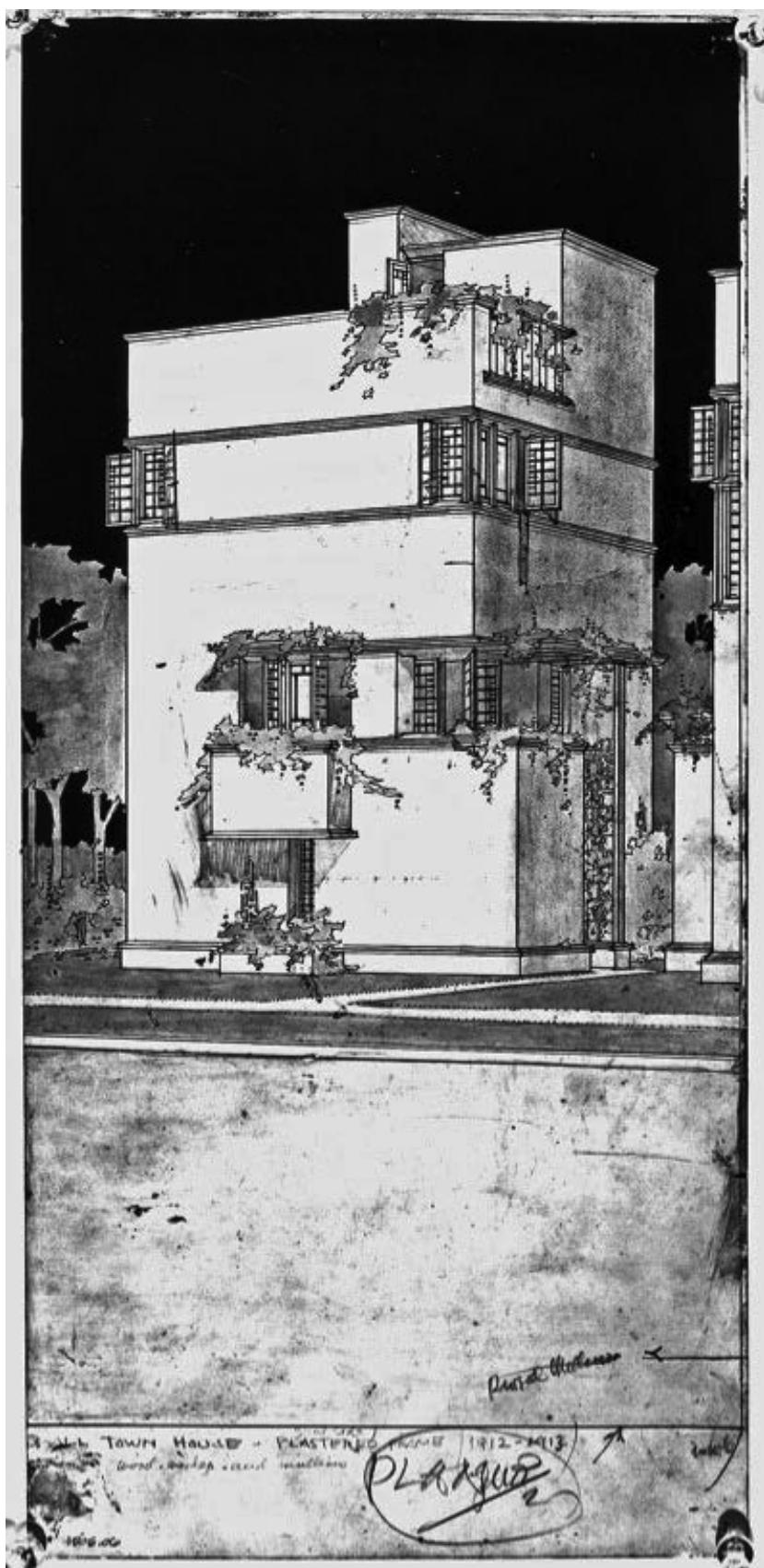
HOUSE FOR MR. AND MRS. GERALD  
CINCINNATI, OHIO  
FRANK LLOYD WRIGHT AR

[fig.11\_Tonkens House view, Cincinnati (1955)] FLLW 5510.001



B. TONKENS

CHITECT



[fig.12\_Small Town Hall, (1912-13)] Town Home as Town Hall. FLLW 1506.006

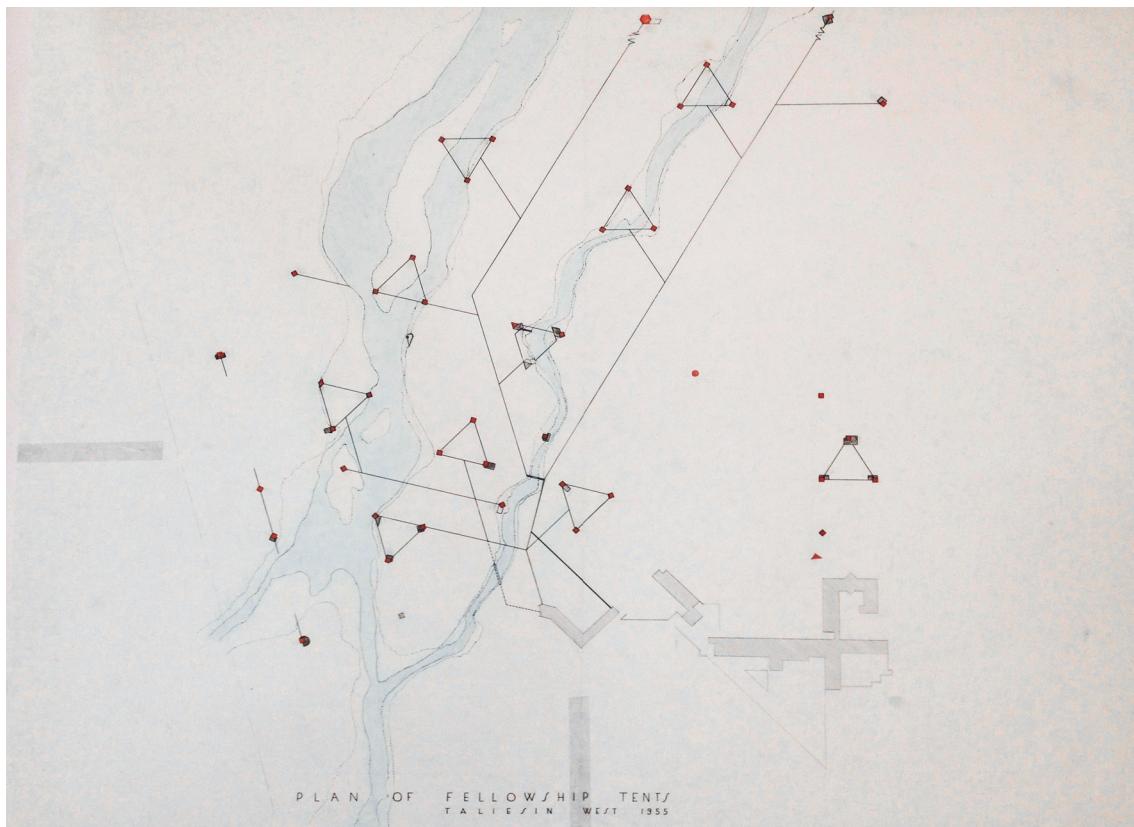
BIRD'S-EYE VIEW OF THE QUARTER-SECTION



[fig.13\_City Club aerial view, Chicago (1912-13)] From Yeomans, ed. *City Residential Land Development: Studies in Planning*. Chicago: University of Chicago Press. December 1916



[fig.14\_Apprentice Shelter, Taliesin West (1954)] Taliesin Apprentice Bob Beharka built the shelter at Wright's urging – his craftsmanship earned Wright's respect, and he went on to supervise the construction of several houses, including Wright's son Llewellyn's. *Image: Robert Beharka, Courtesy Jeanine Ferris Beharka.*

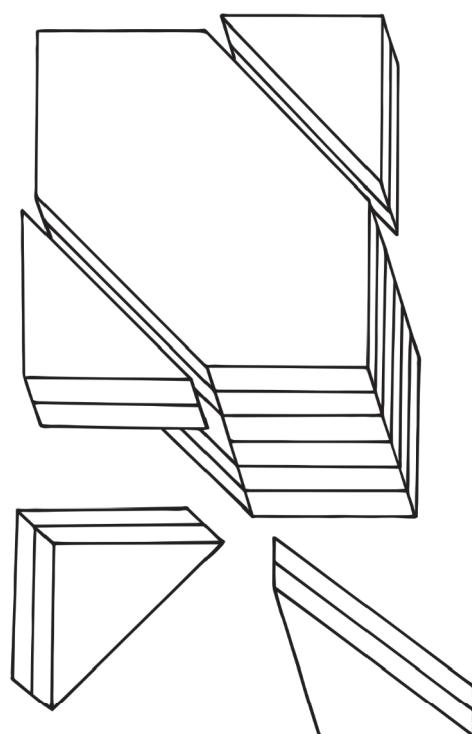


[fig.15\_Plan of Fellowship Tents, Taliesin West (1955)] Drawn by David Dodge. FLLW 3803.230





# *CIVIC DESIGN*



*v.II*



## 2.1 Public Parks (1750-1900)

Following a brief overview of the origins of park system elements from prehistory – with an emphasis on common practices and the etymology of key terms – this chapter develops a chronological survey of the emergence of urban, regional, and national park systems, and the direct influence they had on the next generation of civic designers.

### i. Introduction

Park systems provide a historically proven method for communities to stabilize and cultivate healthy urban ecological habitats – ensuring clean soil, water, and air – while providing options for active mobility (walking, biking, skating, etc.) from city centers to the ‘ecological corridors’ of regional greenways. The historic discipline of Civic Design (ca. 1900-1950) successfully implemented such *park systems* as ‘green armatures’ hosting civic services – including playgrounds, schools, municipal buildings, hospitals and public gardens. At a time of fierce debate about urbanism, ecological issues and climate change, investments in landscape projects are again on the rise. Yet the participation of competing stakeholders, one might even say investors, in these projects suggests that an evaluation of current value judgments might benefit from this re-evaluation of past practices.

This chapter develops a chronological survey of the emergence of *park systems*: from Goethe’s *Park an der Ilm* (1778), to Paxton’s *Birkenhead Park* (1847), to Alexander Jackson Davis’s *Llewellyn Park* (1857), to Olmsted’s coining the term ‘park system’ for his first island-wide ‘green grid’ designed for New York (1860), through his first built park systems in Buffalo (1868-), Chicago (1871-), and Boston (1876-). The chapter concludes with a summary of the contributions of these and other noteworthy figures to urban, regional, and national park systems, and the direct influence they had on the next generation of *civic designers*, taken up in the following chapter.

### ii. Ancient Practices and Formal Conventions

The origins of the elements of park systems can be identified in ancient practices, including methods of enclosure and the creation of roads for commerce and recreation. Many of the key ideas of park systems are represented by words that find their etymology in these practices. For example, when the word ‘build’ was first employed in English about 1150 it referred to the construction of an earthen grave, and three hundred and fifty years later the phrase ‘build up’ was used to describe the process by which King Priam of Troy constructed ‘a big town of bare earth’ surrounded by earthen fortifications.<sup>1</sup> Related to this the term ‘boulevard’ is derived from the Middle Dutch ‘bolwerc’ meaning ‘the wall of a fortification’. In the 15<sup>th</sup> century France, which then did not use ‘w’ in its alphabet, *boulevard* originally meant ‘the top of a military rampart’, and by the 18<sup>th</sup> century, following Louis XIV’s demolition of the Louis XIII’s fortifications, it came to mean ‘a broad street or promenade planted to rows of trees’ such

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<sup>1</sup> Roger G. Kennedy, *Hidden Cities: The Discovery and Loss of Ancient North American Civilization* (New York: Free Press, 1994), vii.

as was then established in its place as a circuit around the city, much as the fortifications around many other European cities – like Vienna and Milan – were likewise replaced by these park-like circuits in the 19<sup>th</sup> century.<sup>2</sup>

Among other common practices adopted by the creators of park systems, perhaps less obvious but no less pervasive, was the creation of monumental public building complexes arranged in a pattern I have come to refer to as ‘the trope’: approximating the disposition of the human body, at the scale of the city, the major monument at the ‘head’ flanked by lesser monuments on either side, and open at the ‘feet’ – creating a dramatic view corridor emphasizing the power maintained by the occupants of that central monument. Derived from the Greek *tropos*, meaning ‘the way’, now generally means ‘a figurative or metaphorical use of a word or expression’ and ‘a significant or recurrent theme or motif.’ Both these meanings contribute to the sense in which I use the term. ‘The trope’ was consistently deployed throughout history in innumerable instances and by cultures as varied as those from ancient Samaria to the Mississippi Valley cultures of North America [*fig1\_townsend\_cabokia*], through Palladio’s elaboration of it in his rural villas, [*fig2\_palladio\_villa-saraceno*] and Thomas Jefferson’s pedagogical idealization of it at the University of Virginia [*fig3\_jefferson\_uva*], and was almost uniformly adopted as the default basis for ‘civic centers’ by the designers of park systems.

Given the historic persistence of ‘the trope’ it seems obvious that it is a direct morphological result of the subconscious affinity we have with the world around us – we project ourselves into everything we see, and we therefore want to create things that are essentially like us. This easy interpretation finds confirmation in such obvious examples as Francesco di Giorgio Martini’s diagram of the human proportions underlying the basilica [*fig4\_martini’s diagram*], and da Vinci’s famed Vitruvian man of 1490, a sketch accompanied by notes on Vitruvius’s architectural treatises and was evidently made as a refinement of Martini’s ideas.<sup>3</sup> [*fig5\_vitruvian man*] Likewise, Da Vinci’s resolution of the human figure into the geometric figures of the square – static, formal, embodying power – and the circle – dynamic, informal, and embodying trust – recalls numerous Mississippi Valley complexes with the same figures, and, rather startlingly, with virtually the same proportions, [*fig6\_circleville\_vitruvian man*], while in other complexes the trope is built up by the reification of these geometric figures: a circular mound at the head and a square mound at the feet, connected by flanking walls yielding a corridor symmetrically articulated with monumental columns. [*fig7\_cherokee\_trope*] As with the trope itself, such geometric figures appear in monumental form throughout history, in some cases indicating social or sacred significance, in others responding to

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<sup>2</sup> “Etymology of ‘Boulevard’ (N.),” Online Etymology Dictionary, accessed September 3, 2017, <http://www.etymonline.com/index.php?term=boulevard>.

<sup>3</sup> Francesco di Giorgio Martini, *Trattato di architettura civile e militare*, ed. Cesare Saluzzo, 1841 ed. (Tipographia Chirio e Mina, 1482), n. As is evident by the manuscript held at Turin’s National Library dated 1470, Martini’s work had circulated in manuscript form long before being published in 1482.

topographical features like a bend in the river, programmatic functions like theatrical performance, or simply as formal devices like semicircular exedra.

It also follows that such anthropocentrism and formal playfulness would tend toward animism more generally, as the creation of various artifacts [*fig8\_animal artifacts*] and linear circuits of effigy mounds attests. [*fig9\_effigy mounds*] One particularly famous artifact, the enigmatic *Cincinnati Tablet*, features a stylized human figure in the archetypical disposition of the trope. [*fig10\_cininnati tablet*] In principle, animism involves the attribution of a living soul to plants, inanimate objects, and natural phenomena, and just as stellar constellations are identified with various human and animal figures, it follows that these formal interpretive expressions are further extended to treating not only buildings but complexes as nodes within larger regional constellations, as is evident in the multi-nodal constellations of monumental mounds built by Mississippi Valley communities and containing the artifacts described above [*fig11\_effigy mounds*] Similar expressions of such animist tendencies are also evident in the much later layouts of the garden of monsters in Bomarzo [*fig12\_bomarzo*] and in the monuments and public corridors in Pope Sixtus V's Rome. [*fig13\_rome\_public works*] In this regard it is also relevant to refer to Chateau Briand, 'The Genius of Christianity', and the pilgrimage circuits of both 'pagan' and Christian traditions, and to their particular cosmology of ideas like *genius loci* as 'the spirit of the place', and terrestrial correspondences with stellar constellations.

Individual stars and planets were also commonly regarded as corresponding with angelic or demonic personalities. For example, both Jesus and Satan are referred to as 'the morning star.' In Isaiah 14:12, the scriptural text named after a prophet Frank Lloyd Wright repeatedly took issue with, Isaiah addresses Satan directly:

*How you have fallen from heaven, O morning star, son of the dawn! You have been cast down to the earth, you who once laid low the nations!*<sup>4</sup>

In Revelation 22:16, Jesus unmistakably identifies himself as the morning star:

*I, Jesus, have sent my angel to give you this testimony for the churches. I am the Root and the Offspring of David, and the bright Morning Star.*<sup>5</sup>

The phrase 'morning star' now most commonly refers to the planet Venus, so named for its appearance in the east before sunrise. For all of these reasons, and others, the alignment of roadways to coincide with astronomical references is also a well-researched formal strategy - from the perfectly

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<sup>4</sup> *Holy Bible: New International Revised Standard Version* (Colorado Springs: Zondervan, 2015), v. Isaiah 14:12. n. Both the KJV and NKJV translate "morning star" as "Lucifer, son of the morning."

<sup>5</sup> *Holy Bible: New International Revised Standard Version*, v. Revelation 22:16.

straight 90km Great Hopewell Road in Ohio (ca.500 BC-200 AD),<sup>6</sup> [*fig14\_hopewell road*] to the Imperial layout of the city of Alexandria (ca.331 BC).<sup>7</sup> [*fig15\_alexandria*] This strategy was notably applied in Milan by Giuseppe Piermarini (1734-1808), evidently influenced by his astronomer friend Barnaba Oriani, as is evidenced by his plan of the city – popularly known as ‘the astronomer’s plan’ (ca.1771-79): it is worth pointing out that in Piermarini’s plan the forum at upper left is square, whereas in Giovanni Antolini’s Napoleonic plan of 1801 a circular ‘Bonaparte Forum’ is proposed.<sup>8</sup>

[*fig16\_milano*]

Among noteworthy precedents of continuous urban corridors for dedicated pedestrian use we must think of the *Corridoio Vasariano*, an elevated enclosed passageway in Florence that connects the Palazzo Vecchio with the Palazzo Pitti. [*fig17\_fig\_corridoio\_vasari*] Commissioned by Duke Cosimo I de' Medici and built in 1565, it was designed to allow the Duke to move freely between his residence and the government palace. Like other monarchs of the era, these was reason for him to feel insecure in public – and the Duke was particularly unpopular in this period, having in 1532 replaced the communal republican government of Republic of Florence – making the republic into a hereditary monarchy.<sup>9</sup> Whereas the *Corridoio Vasariano* was literally connecting royal buildings for the private use of a monarchy explicitly avoiding their public, this idea of continuous circuits and ‘missing links’ is later employed in creating *civic corridors* through urban fabric as armatures for park systems.

Indeed, the Italian notion of civic magnificence – *la magnificenza civica* – dating from this period explicitly included such civic monuments and public spaces, and was an important precursor to the emergence of park systems and the civic design movement. In 1606 Giovanni Botero (1540-1617), considered the period’s great theorist of civic magnificence, described the scope of his ambition in this way: “Unto art, belongeth the strayte and fayre streetes of a cittaye.”<sup>10</sup> The Académie des Beaux-Arts (1648 to the present – known as L’École des Beaux-Arts from 1863) is another institution whose direct influence on the civic design movement is incalculable, not least for its explicit advocacy of the unity of the arts – including drawing, painting, sculpture, and architecture, among other media. The influence of these developments in Italy and France was effectively institutionalized through the convention of The Grand Tour, a period of travel abroad commonly undertaken by young upper class Europeans as a means of concluding their education.<sup>11</sup> As Samuel Johnson stated in 1776:

<sup>6</sup> Giulio Magli, “Possible Astronomical References in the Planning of the Great Hopewell Road,” *ArXiv Preprint ArXiv:0706.1325*, 2007.

<sup>7</sup> Luisa Ferro and Giulio Magli, “The Astronomical Orientation of the Urban Plan of Alexandria,” *Oxford Journal of Archaeology* 31, no. 4 (November 1, 2012): 381–89, <https://doi.org/10.1111/j.1468-0092.2012.00394.x>.

<sup>8</sup> Ambrogio Annoni, “Piermarini, Giuseppe,” in *Encyclopedie Italiana* (Treccani, 1935).

<sup>9</sup> For recent scholarship see: *Il corridoio vasariano agli Uffizi* (Milano: Silvana, 2002).

<sup>10</sup> Giovanni Botero, *A Treatise Concerning the Causes of the Magnificence and Greatness of Cities*, trans. Robert Peterson (London: T.Purfoot, 1606), 9; as cited in Catherine Richardson et al., *The Routledge Handbook of Material Culture in Early Modern Europe* (Taylor & Francis, 2016), 133.

<sup>11</sup> Note: Some evidence suggests that The Grand Tour was anticipated by traditions of medieval guilds and freemasonry societies in which young adepts became ‘companions’ to elder mentors, at the close of which they

*A man who has not been in Italy is always conscious of an inferiority, from his not having seen what it is expected a man should see. The grand object of traveling is to see the shores of the Mediterranean. On those shores were the four great Empires of the world; the Assyrian, the Persian, the Grecian, and the Roman. All our religion, almost all our law, almost all our arts, almost all that sets us above savages, has come to us from the shores of the Mediterranean.*<sup>12</sup>

The Grand Tour was a cultural and pedagogical tradition that was maintained from about 1650 until the outbreak of the Napoleonic Wars in 1803, which interrupted most foreign travel. Several interesting implications for park systems can be drawn from this tradition, coinciding as it does with the dawn of British landscape architecture and public parks – and with the rise of the British Empire, the various connotations of which are evident from Johnson's statement and will be considered in due course.

Regarding the distinction between public and private ownership, while little is known about the attitudes of the earliest of cultures toward this distinction, the emergence of this paradigm is illustrated in the legislative development of ‘the commons’ in Britain. In 1100 Henry I of England issued the Charter of Liberties, a document addressing abuses of royal power and establishing certain laws regarding the treatment of church officials and nobles. The Charter of Liberties was the forerunner of the Magna Carta, issued by King John of England in 1215. Bearing the full title of Magna Carta Libertatum (Great Charter of Freedoms), the act was established in response to a revolt of the English nobility who had organized a ‘Walk on London’ with the intention of forcing the king to agree to a set of stipulations - the Articles of the Barons - that became the basis for the Magna Carta itself, and further limited royal power while subjecting it to legal procedures as well as confirming certain rights pertaining to ‘freemen’. In 1217 the Carta de Foresta (Charter of Forests) further extended some of these rights to serfs and vassals, including the right of common access to royal lands. These acts triggered a series of legal exchanges between wealthy landowners and tenant serfs, a back and forth oscillation of pro-enclosure initiatives undertaken by the ruling classes and anti-enclosure initiatives for the public good. The outcome of this polemic intergenerational struggle, despite persistent public resistance, is that currently over 98% of historic British commons have been privatized.<sup>13</sup> As historian Matthew Johnson has written, “Enclosure was an act, or a series of actions, of creating new forms of boundary. It involved placing hedges, ditches, fences, walls, pales.”<sup>14</sup> Geographer Nicholas Bromley is more explicit:

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undertook a European tour as a ‘journeyman’s year.’ See for example: Paola Bianchi and Karin Wolfe, *Turin and the British in the Age of the Grand Tour* (Cambridge University Press, 2017), 142–55; Various forms of this tradition still exist today: Melissa Eddy, “Cleaving to the Medieval, Journeymen Ply Their Trades in Europe,” *The New York Times*, August 7, 2017, sec. Europe, <https://www.nytimes.com/2017/08/07/world/europe/europe-journeymen.html>.

<sup>12</sup> James Boswell, *The Life of Samuel Johnson*, ed. David Womersley (Penguin Classics, 2008), 537.

<sup>13</sup> Louis Wolcher and Peter Linebaugh, “The Charters of English Liberties,” *An Architektur*, 23 (2010): 7–10.

<sup>14</sup> Matthew Johnson, *An Archaeology of Capitalism*, (Cambridge, Mass: Wiley-Blackwell, 1996), 71.

*Of particular consequence is the process of enclosure: that is, the conversion of commonable lands, whether on wastes, commons, or village fields, into exclusively owned parcels, and the concomitant extinction of common rights....*<sup>15</sup>

In opposition to this, Louis Wolcher, Professor of Law at the University of Washington-Seattle, explains that “...the commons in its most basic sense consists in the shared imagination of individual human beings acting in solidarity with one another to confront a world that seems to be falling about before our very eyes.”<sup>16</sup>

The Magna Carta and the Carta de Foresta provided the template for subsequent legal acts from the Swiss Federal Charter of 1291 to the U.S. Constitution of 1776 – particularly the Habeas Corpus Act and the Due Process Clause – and in 1369 were merged into a single statute that remained in force until 1971.<sup>17</sup> But while the Magna Carta is famous as a forerunner to modern constitutions, the Carta de Foresta arguably had a greater social impact with regard to sustaining people’s livelihoods. While the Magna Carta enforced the rights and privileges of ‘freemen’, the Carta de Foresta codified the rights of common people: rather than *granting* the right of access to land, the Charter of the Forest *confirmed* existing practices as a right of common people.<sup>18</sup> The idea of the commons can be seen as the creation of collective spaces that truly are ‘beyond’ the dichotomy of public and private. Created and maintained by collective action, and enshrined in The Magna Carta and Carta de Foresta, the historic legislative idea of the commons – as a place for recreation, gathering, and agricultural cultivation – was effectively taken up in the evolution of park systems.

With this brief review of the formal, social and legal legacies inherited by civic designers - the inventors of park systems - several recurring elements have been identified that will continue to recur in the following chronological overview of park systems. As in the preceding review of historical precedents, in each of the following cases there was not *a* designer, *per se*, but a community or team of designers – this team becomes increasingly conventionalized over time until there are generally four roles that can be readily identified: the gardener or landscape architect for water, topography and plants, the architect for buildings, the engineer for bridges, and, of course, the project patron, advocate or benefactor. In the later projects we will increasingly see public rather than private patronage: with design teams come client teams. When such civic-minded private initiatives began to attain popular support they increasingly became public projects, and in the intergenerational process of communicating with the public about these projects a dialog emerged – facilitated by certain representational conventions – that was to provide a sound basis for the discipline of civic design, championing ecological continuity and social mobility.

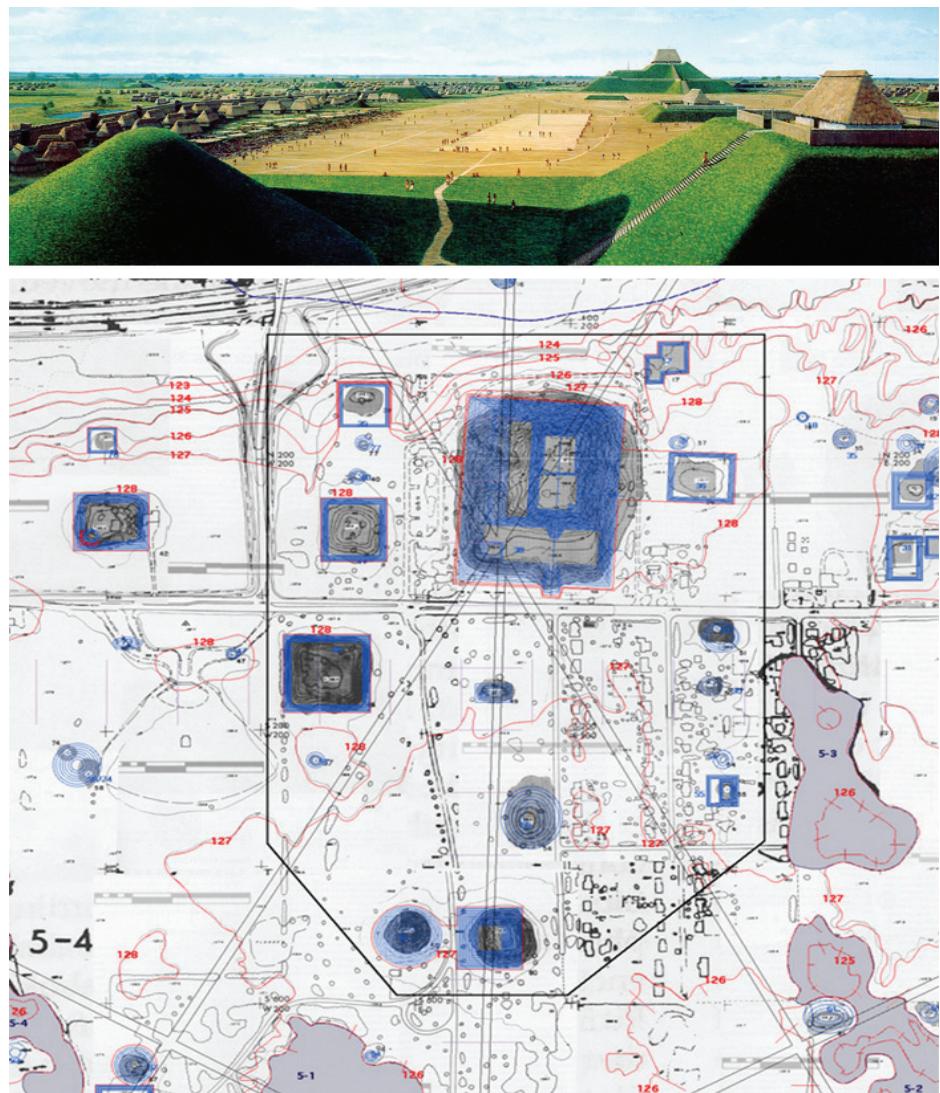
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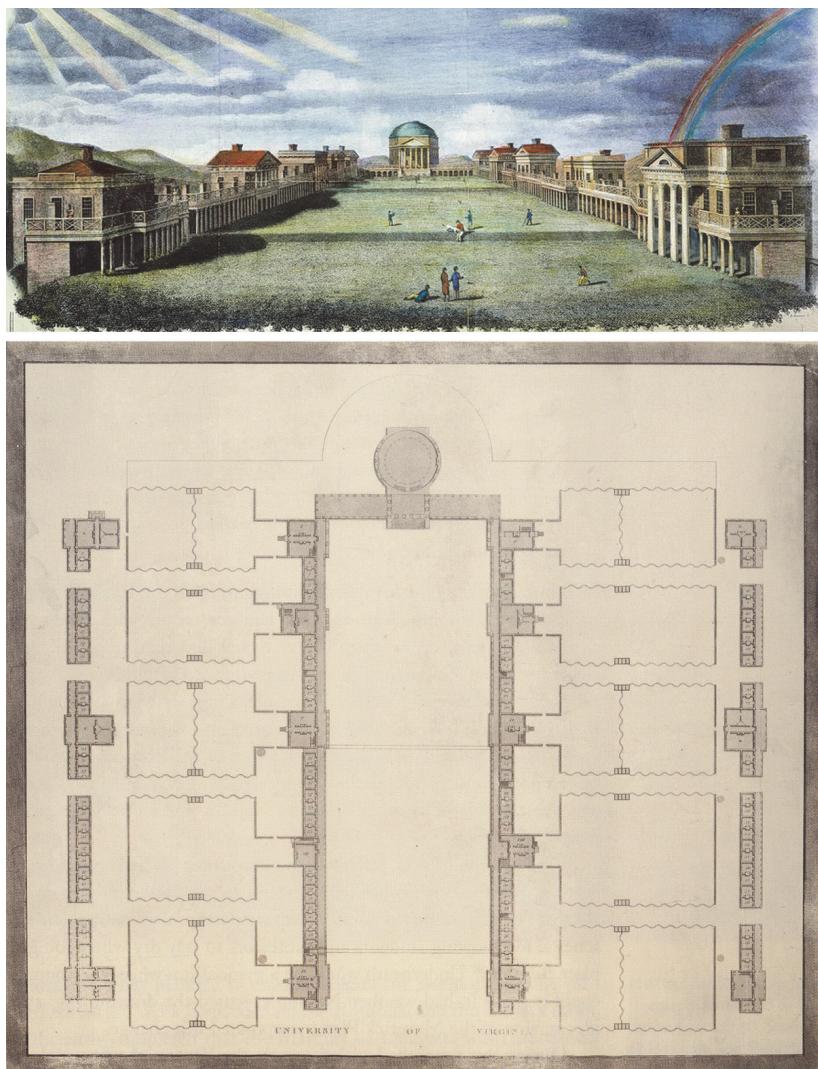
<sup>15</sup> Nicholas Blomley, “Making Private Property: Enclosure, Common Right and the Work of Hedges,” *Rural History* 18, no. 1 (April 2007): 1–21, <https://doi.org/10.1017/S0956793306001993>.

<sup>16</sup> Wolcher and Linebaugh, “The Charters of English Liberties,” 5.

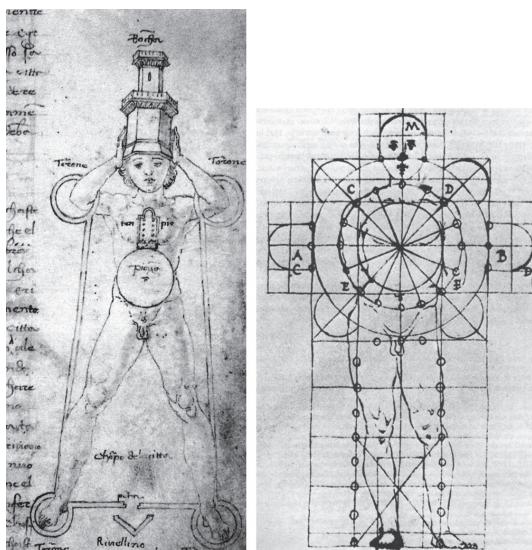
<sup>17</sup> Wolcher and Linebaugh, 8.

<sup>18</sup> Wolcher and Linebaugh, 2.

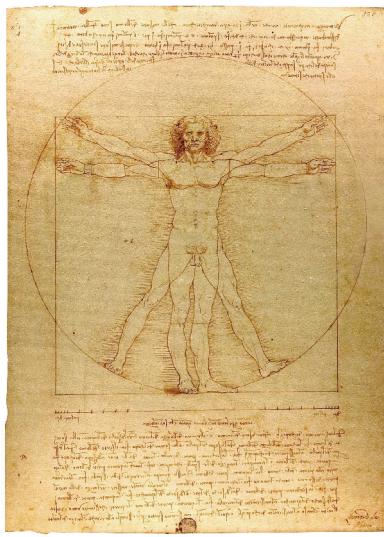




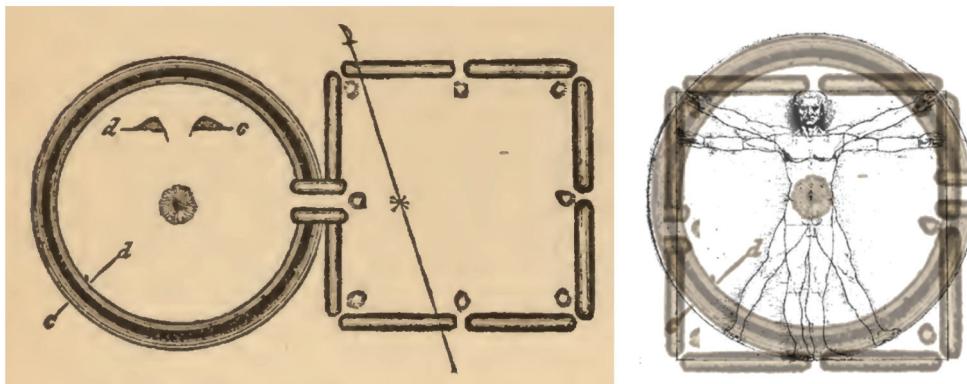
[fig3\_Jefferson\_University of Virginia, trope (1818)] Images: Courtesy of University of Virginia Archives



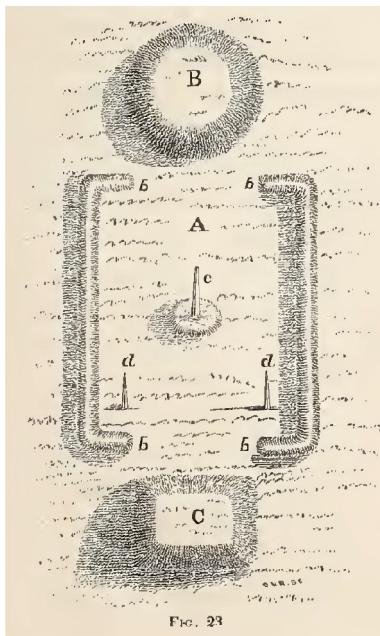
[fig4\_ Francesco di Giorgio Martini's human analogy] Martini's sketches of the human figure as the basis for 'the trope', (left) *Trattato di architettura*, 1470 manuscript and (right) his diagram of the human proportions underlying the basilica, as published in 1482. Images: Biblioteca Nazionale Turin



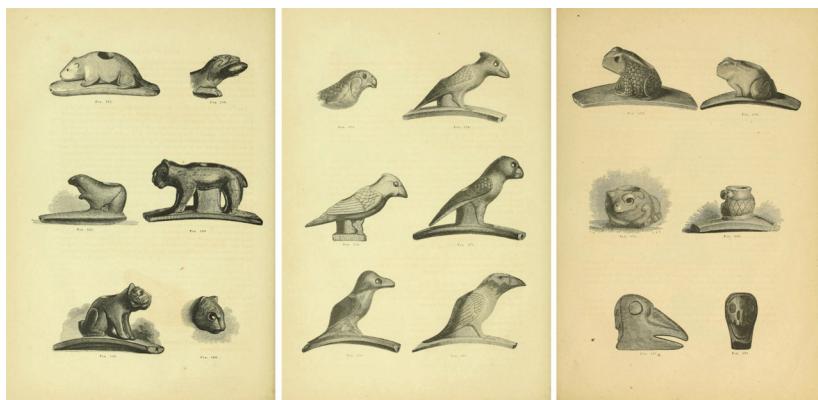
[fig5\_Leondardo da Vinci, 1490, Vitruvian man] The sketch in accompanied by notes on Vitruvius's architectural treatises. *Image: Biblioteca Nazionale Turin*



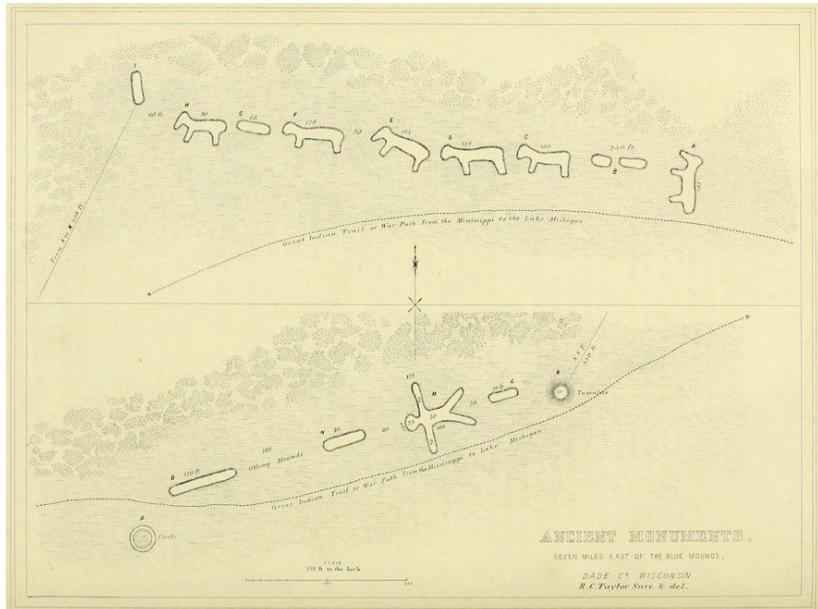
[fig6\_Circleville, Ohio] The proportions of Circleville match those of Da Vinci's *Vitruvian man*.  
Images: (left) Peets 1892 [p.86, fig.4], (right) the author



[fig7\_Cherokee 'Chunk Yard'] The trope as illustrated by ritualistic space. *Image: Squier 1848 [p.121 fig.23]*



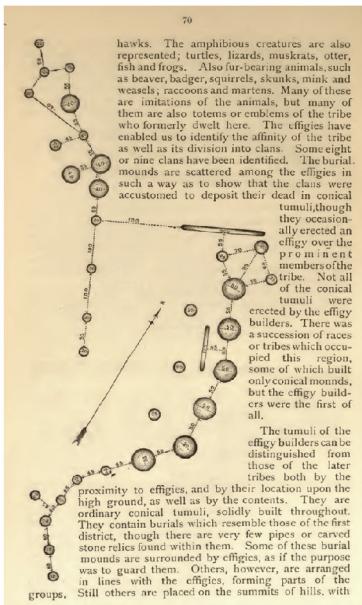
[fig8\_Animal Artifacts] Images: Squier 1848 [pp.396, 404, 409]



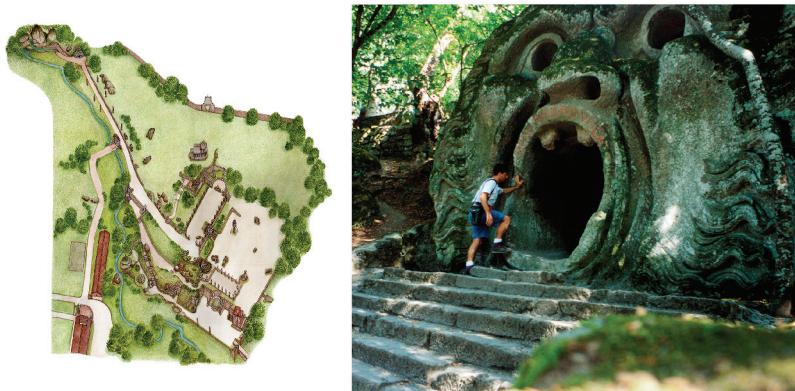
[fig9\_Human and Animal Effigy Mounds] Blue Mounds, Dade County, Wisconsin. Image: Squier 1848 [p.126]



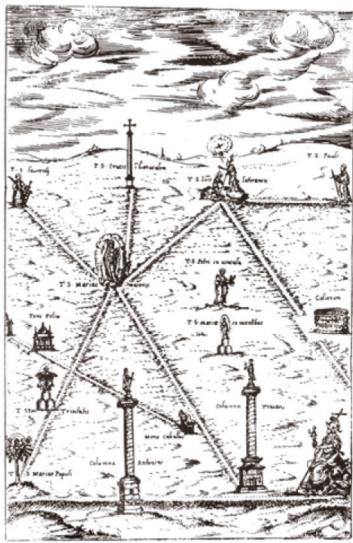
[fig10\_Cincinnati Tablet] Excavated from a mound in that city in 1838. The map at right dates from that year, and shows the location of the mound just north of Fifth Street and Mound Avenue. The mound itself was demolished in 1841. Images: Courtesy of Cincinnati Museum



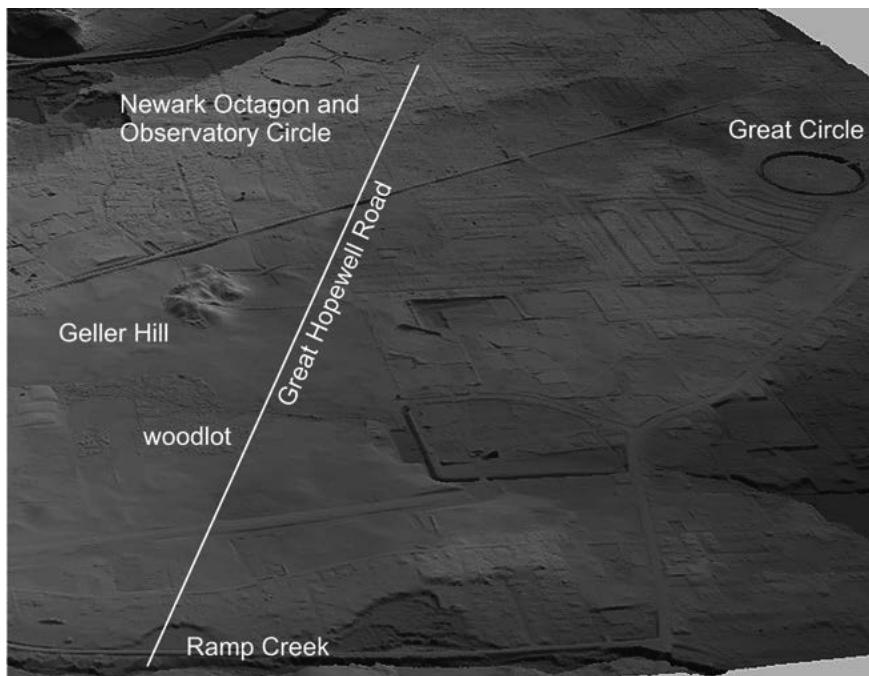
[fig11\_A Constellation of Effigy Mounds] Near Beloit, Wisconsin *Image: Peet 1892 [p.70]*



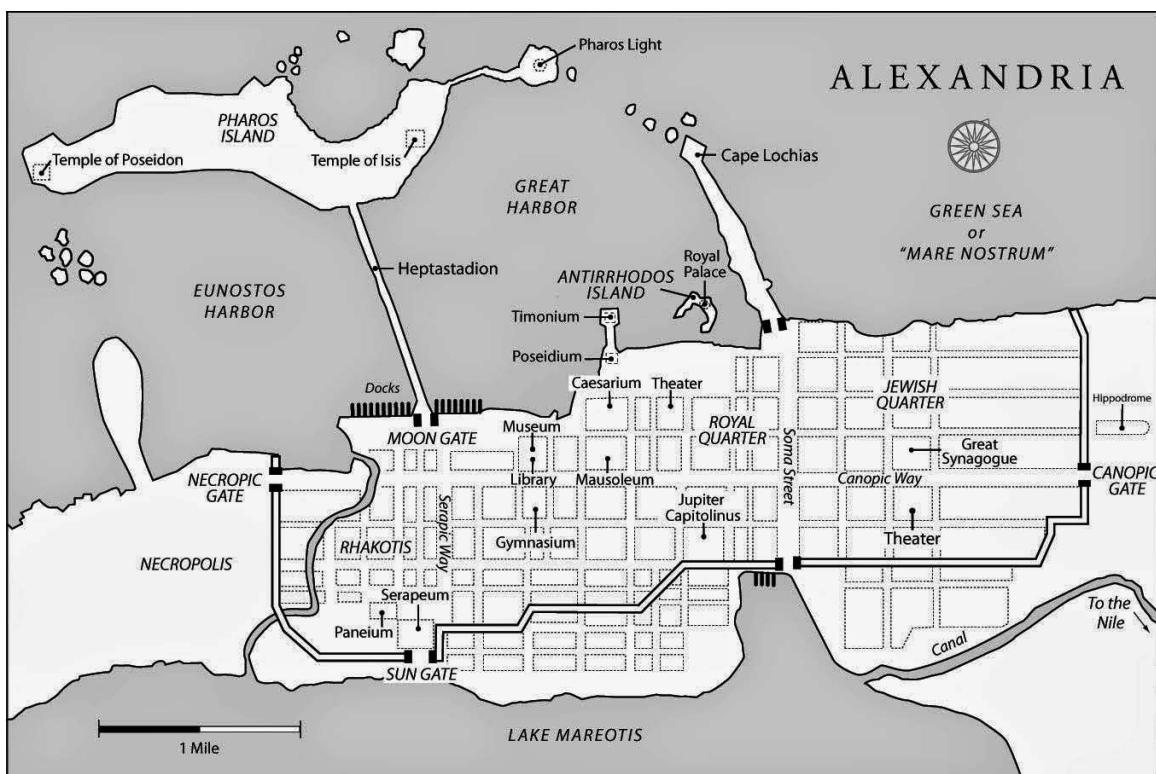
[fig12\_Bomarzo] *Images: (left) Courtesy of Óscar Elguerzabal, (right) Courtesy of Ed Yourdon*



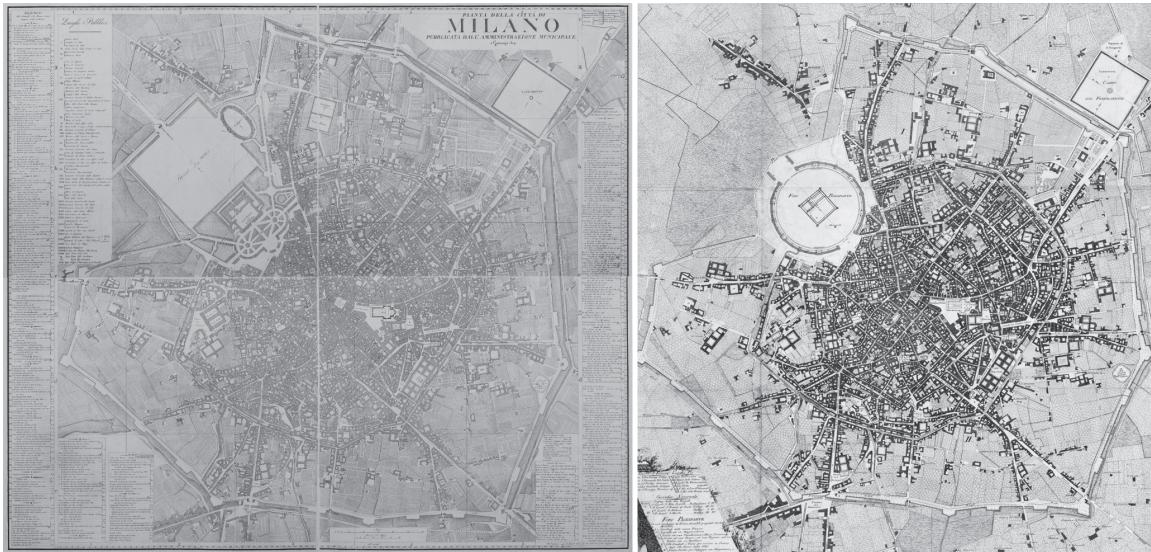
[fig13\_Rome's Axes] Works begin under Pope Sixtus V (1585-90). *Images: public domain*



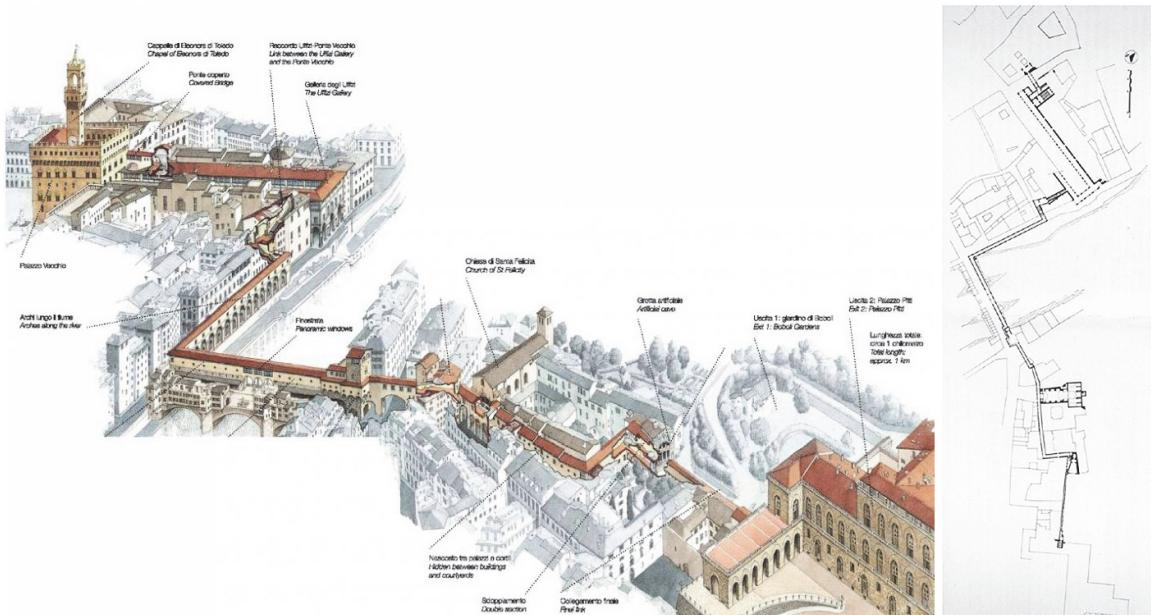
[fig14\_The Great Hopewell Road] As revealed by lidar, 2016. Image: Ohio State University Earthworks Center



[fig15\_Alexandria, Egypt - after Franck Goddio, 2016] Image: Wikimedia Commons



[fig16\_Milano] (left) Piermarini's 'astronomers plan' ca. 1770s and (right) Giovanni Antolini's Napoleonic plan of 1801. *Images: Biblioteca Nazionale Turin*



[fig17\_Corridoio Vasariano, Florence] Giorgio Vasari, 1564. *Image: Wikimedia Commons*

*iii. Anticipating Park Systems: 1750-1800 – from Private Gardens to Public Parks*

*1713-80 – Bridgeman and Vanbrugh's Stowe Landscape Gardens*

The English landscape garden has long been regarded as the place where the Renaissance-Baroque system of classical architecture was dismantled, and where certain crucial ideas that can be called ‘modern’ first appeared: the landscape gardens at Stowe in Buckinghamshire, England, provide a first exemplary instance of this.<sup>19</sup> Built on a site of historic significance, the manor of Stowe – the etymology of which refers to an ancient holy place of great importance in Anglo-Saxon times – predates the Norman conquest of England in the 11<sup>th</sup> century.<sup>20</sup> Stowe gardens were begun by English garden designer Charles Bridgeman (1690-1738) and architect John Vanbrugh (1664-1726) in 1713, and their collaboration continued until 1730 under the patronage of Lord Cobham, Sir Richard Temple (1675-1749) whose fortune was in fact derived from the inheritance his wife, Anne Halsey (daughter of Edmund Halsey, proprietor of the Anchor Brewery). The fame of this landscape and architect design team was to be eclipsed by their more famous design successors at Stowe –namely landscape gardener William Kent (1685-1748), and especially Lancelot ‘Capability’ Brown (1716-1783) who was head gardener at Stowe from 1741 to 1751 and is now generally credited with the design.

While ‘Capability’ Brown’s role is well known – he is now remembered as ‘England’s greatest gardener’ having designed over 170 parks, many of which still exist – for our purposes it is enough to acknowledge that Stowe as we know it now is a palimpsest of successive interventions, and its initial design was an armature providing a landscape narrative from mythical prehistory to the present, as historian Neil Levine has written:

*The contrast between the apparent freedom and casualness of the picturesque approach and the geometric regularity and formal order that ruled the earlier Italian and French gardens was interpreted as an explicit sign of the rejection of existing classical conventions of representation and their replacement by something less formulaic and less prescriptive, more open to the variety and indeterminateness of individual experience. These transformations in the realms of architecture and landscape design were seen...as intimately related to the modern politics of liberalism, nascent ideas of nationalism, and the new psychology of perception grounded in the theory of associationism.<sup>21</sup>*

Deploying a variety of architectural elements – including pyramids, temples and purposely built ruins – the grounds at Stowe were designed in an allegorical way to reflect the political ideas of its owner, Lord Cobham (1685-1749), culminating in a view of the so-called River Styx, and an exedra (semi-circular

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<sup>19</sup> Emil Kaufmann, *Architecture in the Age of Reason: Baroque and Post-Baroque in England, Italy, and France*, 1st ed. (Cambridge, Mass.: Harvard University Press, 1955), 75–88; as cited in Neil Levine, *Modern Architecture: Representation and Reality*, 1st ed. (New Haven Conn.: Yale University Press, 2010), 16.

<sup>20</sup> Eilert Ekwall, *The Concise Oxford Dictionary of English Place Names*, 4th Revised edition edition (Oxford: Oxford University Press, 1960), 1927.

<sup>21</sup> Levine, *Modern Architecture*, 16.

terminus) memorializing noteworthy figures from British history. This combination of rolling topography, precise geometry, ‘ancient’ monuments and contemporary memorials was to become the template for parks to come, including those public park systems later created by civic designers.

The origin of the design in ‘the trope’ is evident in an early drawing, dated 1715 and variously attributed to Bridgeman and Vanbrugh, showing Stowe manor flanked by formal gardens. *[fig18\_stowe\_trope]* Among other early drawings of Stowe, Charles Bridgeman’s aerial view of 1723 is particularly striking in its varied treatment of ‘the trope’ within a site-responsive axial layout framing views and forcefully anticipating by some two hundred years Frank Lloyd Wright’s site-responsive ‘reflex’ geometry. *[fig19\_stowe\_bridgeman]* The earliest known plan of the entire site is dated 1739, the year after Bridgeman’s death, and is signed by his widow Sarah Bridgeman (nee Mist, married 1717). *[fig20\_stowe\_plan]* Little is known about her actual role in the work, but given her role in producing this earliest ‘general plan’ as a synthesis of the project, and her continued involvement with his projects following his death, it is likely that she was much more intimately involved than has been acknowledged. In any case, much of what we now know of Bridgeman’s working methods comes from her detailed correspondence and the numerous lawsuits she undertook to obtain the money ostensibly owed to her husband. Despite the success of their work, and his role as royal gardener to King George II and Queen Caroline from 1728, she died in poverty five years after he.<sup>22</sup>

A final detail of note at Stowe is the landscape device known as the ‘ha-ha’ – a hidden boundary, or sunken fence, separating park from garden on an estate. In his essay *On Modern Gardening* (1771) English historian Horace Walpole (1717-1797) generously attributed the introduction of the ha-ha as a garden feature to none other than Bridgeman himself, writing:

*...the capital stroke, the leading step to all that has followed, was (I believe the first thought was Bridgeman’s) the destruction of walls for boundaries, and the invention of follies – an attempt then deemed so astonishing, that the common people called them Ha! Ha’s! to express their surprise at finding a sudden and unperceived check to their walk...He leaped the fence, and saw that all nature was a garden. He felt the delicious contrast of hill and valley changing imperceptibly into each other, tasted the beauty of the gentle swell, or concave scoop, and remarked how loose groves crowned an easy eminence with happy ornament, and while they called in the distant view between their graceful stems, removed and extended the perspective by...comparison. Thus the pencil of his imagination bestowed all the arts of landscape on the scenes he handled. The great principles on which he worked were perspective and contrast, light and shade.*<sup>23</sup>

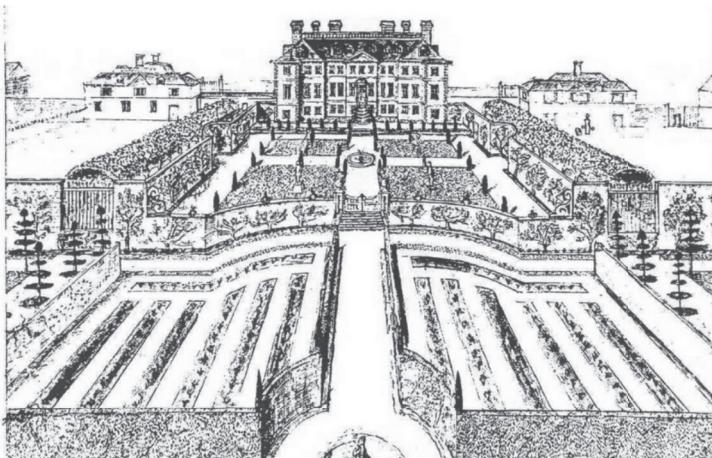
<sup>22</sup> Richard Bisgrove, “Chapter Three - Charles Bridgeman and the English Landscape Garden,” in *A History of Gobions* (Hertfordshire: Gobions Woodland Trust, 1993).

<sup>23</sup> Horace Walpole, *Essay on Modern Gardening*, ed. Alice Morse Earle, 1904 ed. (Canton, Pa.: Kirgate Press, 1771), 53-57 . Note: As the editor Alice Morse Earle has written in her introductory note to the 1904 edition, "One of the sentences of Walpole's which is constantly quoted is his description of sunken boundaries and his explanation of their name ha- His derivation has been attributed to his imagination, for the ha-ha was not even

[fig21\_stowe\_haha] The famous ha-ha section drawing shows the construction of a ha-ha: the ground is removed and then leveled off at same height as the retaining wall. Before the introduction of the ha-ha, the only method of keeping livestock in the park separate from the gardens was by fences and walls.<sup>24</sup> But these were visually intrusive means of control, whereas the ha-ha is a nearly invisible boundary, allowing for views across the gardens and further into the park. Walpole's admiring reflection on Bridgeman continues:

*But of all the beauties he added to the face of this beautiful country, none surpassed his management of water. Adieu to canals, circular basins, and cascades tumbling down marble steps, that last absurd magnificence of Italian and French villas. The forced elevation of cataracts was no more. The gentle stream was taught to serpentine seemingly at its pleasure, and where discontinued by different levels, its course appeared again at a distance where it might be supposed naturally to arrive... Thus dealing in none but the colours of nature, and catching its most favourable features, men saw a new creation opening before their eyes. The living landscape was chastened and polished, not transformed. Freedom was given...<sup>25</sup>*

This 'new freedom' in the treatment of water, soil and plants – weaving nature and culture together through elicited geometries and existing conditions – effectively anticipated the ecological sensibility that was soon to come, and the emerging social values that accompanied it.



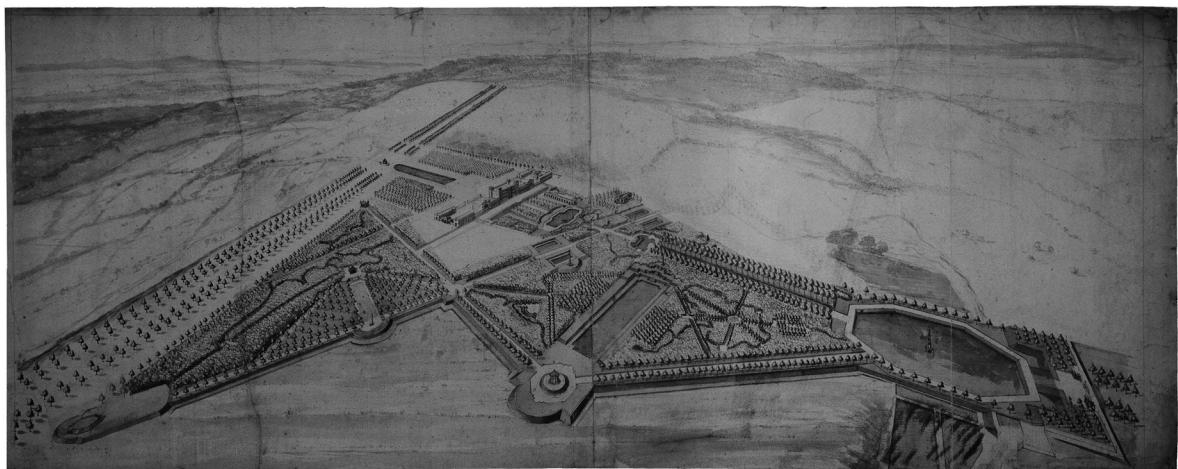
[fig18\_The South Front of Stowe House in 1715] Illustrating the presence of 'the trope' in this design, showing a smaller house than now exists and formal planting that no longer exists. *Image: Courtesy National Trust*

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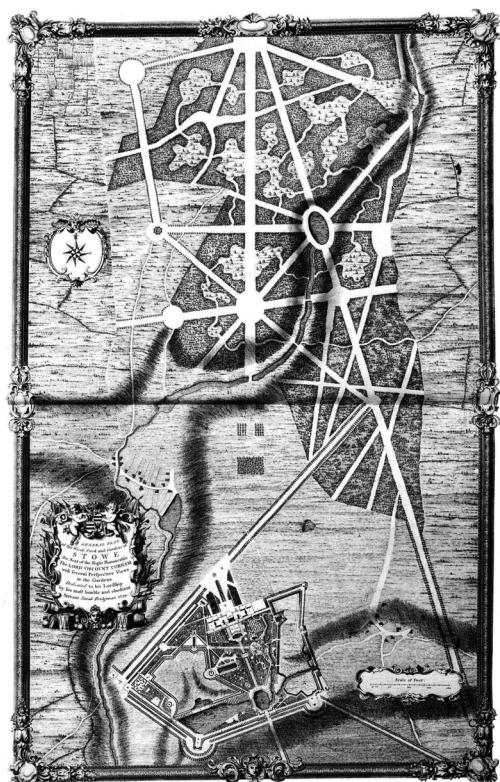
invented by Bridgeman, as Walpole states. It is named and described as a common feature in gardens in *The Theory and Practise of Gardening*, published in 1712, and was known as a ha-ha in French gardens of the seventeenth century. Walpole knew this book both in French and as Englished, for his Essay bears evidence of his knowledge; yet his mis-statement stands with the rest of the nonsense about the sunken boundary," xxi.

<sup>24</sup> George Howard, Felix Kelly, and Diane Tippell, *Castle Howard* (Castle Howard Estate, 1972), n. This drawing was made in 1972 by artist Felix Kelly – who was of the most recent generation extensively involved at Stowe in various capacities, including the painting of a series of large murals in the castle.

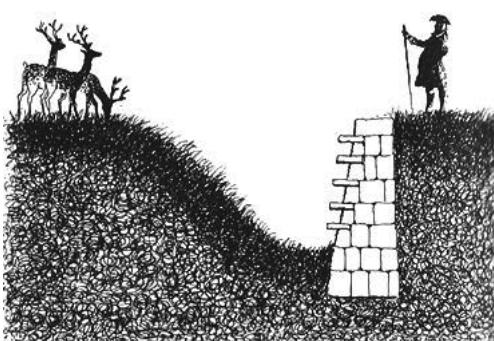
<sup>25</sup> Walpole, *Essay on Modern Gardening*, 57–59.



[fig19\_A bird's eye view of Stowe] Charles Bridgeman, c.1723. *Image: Oxford Library, BOD000208-01*



[fig20\_Stowe General Plan (1739)] Drawn by Jacques Rigaud. *Image: Courtesy National Trust*



[fig21\_Stowe - haha] Drawn by Felix Kelly, 1972. *Image: Courtesy National Trust*

### 1778 – Goethe and August's Park and der Ilm, Weimar

On January 30, 1778 the premiere performance of Johann Wolfgang von Goethe's six-act play *Der Triumph der Empfindsamkeit* – The Triumph of Sensibility – was given in Weimar.<sup>26</sup> Performed for the Weimar court, where expectations of literary and musical quality were very high, the play is both a parody and a melodrama in which singing, speaking, *underscored* speech and *accompanied measured* speech are deployed by the main characters: Queen Mandandane – played by Corona Schröter, a talented court artist for whom the part was expressly written – is a woman who, to the dismay of her husband King Andrason – played by Goethe – was susceptible to the charms of Prince Oronaro – played by Goethe's valet, Philip Seidel.<sup>27</sup> The first three acts establish Oronaro's false sensibility with his disingenuous behavior towards the queen and her ladies-in-waiting, a falseness represented by his taste for 'artificial nature' – memorably illustrated by the prince's reference to his valet as his *Naturemeister*, *Directeur de la nature*, who follows the prince everywhere, transporting several large cases that contain 'nature': plants, the most beautiful songbirds, and, inexplicably, moonlight, which the prince – 'this most sensitive of all men' – prefers because it spares his sensitivities from the unpleasant smells and discomforts of 'real' nature.<sup>28</sup> The last three acts enact the king and the ladies-in-waiting using a life-size doll resembling the Queen – stuffed with such books as Rousseau's *La Nouvelle Héloïse* (1760) and Goethe's own *Die Leiden des jungen Werthers* (1774) – to expose the prince as a fraud. The prince is in fact unable to distinguish the doll from the queen, and the queen finally recognizes his shallowness and returns to her husband. By 'contrasting sensibility's charlatans with its true believers, the poseur is exposed and sensibility triumphs.'<sup>29</sup>

This play sheds light on the ambitious nature of another of Goethe's efforts that year, the creation of the Park an der Ilm – a process closely linked with Goethe's life and work in Weimar, and providing the first example I have found of a deliberate *park system*. [*fig22\_park an der ilm*] Created as a *Landschaftspark* in the style of an English landscaped garden, such as the one at Stowe, it is thought to have been directly inspired by his visit in 1776 to the Dessau-Wörlitz Garden Realm – also known as the English Garden of Wörlitz – which had such a powerful impact on him that he subsequently turned his attention to landscape, park and garden design.<sup>30</sup> That same year Duke Carl August gifted the poet with a small house and garden sited on the northeast bank of one of the meandering curves in the river and known today as Goethe's Garden House, [*fig23\_goethehaus*] and by 1778 Goethe and the duke had arranged for the creation of Park an der Ilm – a 48 hectare, kilometer-long stretch of

<sup>26</sup> Burkhard Henke, Susanne Kord, and Simon Richter, *Unwrapping Goethe's Weimar: Essays in Cultural Studies and Local Knowledge* (Camden House, 2000), 108.

<sup>27</sup> Henke, Kord, and Richter, 108–9.

<sup>28</sup> Henke, Kord, and Richter, 109.

<sup>29</sup> Henke, Kord, and Richter, 110.

<sup>30</sup> Franz Bosbach, *Landschaftsgärten des 18. und 19. Jahrhunderts: Beispiele deutsch-britischen Kulturtransfers* (Walter de Gruyter, 2008), 46.

park along the Ilm river, on the eastern edge of Weimar's old town. This site was in fact the 'missing link' between two existing parks— Schlosspark Belvedere to the south, and Schlosspark Tiefurt to the north – and by linking these two 'castle parks' with this river park, the essential ethos of *park systems* was effectively established. [fig24\_ilm\_park\_system] This creation of the 'missing link' between existing parks, or fragments of parks, is one of the essential design moves in the creation of *park systems*, and we'll encounter many instances of it throughout this chronology.

The first improvements made on the site of Park an der Ilm were to the rocky western slope in 1778 and, in a clear example followed by generations of *park system* designers, paths were subsequently laid, trees and plants and seating installed, [fig25\_ilm\_views] monuments, bridges, artificial ruins and other park architecture was built – all in the 'English Garden' style. [fig26\_ilm\_monuments] Over time the *park system* grew, and additional 'missing link' corridors were created to incorporate other old palace gardens, such as the Stern and the Welsch Garten. These gardens were redesigned and integrated into the park, along with the eastern valley slope and water meadow as far as Oberweimar, culminating in a continuous *park system* that now reaches over 10 km east to Gutspark Oßmannstedt (1797), nearly 30 km south to Schlosspark Kochberg (1800), and 12 km northwest to Schlosspark Ettersburg (1814).

Such park expansion largely came to an end in 1828 with the death of Carl August, who had been a driving force behind the design of the park, and its financial provider. The *park system* was subsequently maintained but its direct connections with the surrounding landscape were compromised, and the park was evidently somewhat neglected until it was taken over by the National Research and Memorial Sites of Classical German Literature in 1970. Extensive reconstruction, preservation and maintenance work was then carried out, and the park has been a UNESCO World Heritage Site since 1998. Having been inaugurated through the literary efforts of *The Triumph of Sensibility*, the park also served as the setting for Goethe's third novel *Die Wahlverwandtschaften* (1809) – translated as *Elective Affinities* – whose subject matter is intimately related to that earlier text. Situated between the park and garden, Goethe's main characters are Eduard – who tends to the park – and Charlotte – who tends to the garden. An aristocratic couple enjoying an idyllic but rather dull life on the grounds of their rural estate, they invite Eduard's childhood friend the Captain, and Otilie, Charlotte's beautiful, orphaned, coming-of-age niece, to live with them – a decision described as an 'experiment', in the sense that *elective affinities* is based on the older notion of *chemical affinities*.

Mindful of the exchanges we've already considered in the context of his color theory, it is interesting to note that Goethe describes the structure of the house, its surrounding gardens, and the park as "a chemical retort in which the human elements are brought together for the reader to observe the resulting reaction."<sup>31</sup> In this sense, *Elective Affinities* is also among the first works to model human

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<sup>31</sup> As cited in Libb Thims, *Human Chemistry (Volume Two)* (Morrisville, NC: LuLu, 2007), 374.

relationships as chemical reactions or chemical processes since the analogical aphorism of the Greek philosopher Empedokles of Acragas (495-435 B.C), who speculated that ‘people who love each other mix like water and wine; people who hate each other segregate like water and oil.’<sup>32</sup> Goethe alternatively presents the park as the public domain and the garden as the private domain, and the park as the masculine and the garden as feminine – distinctions that as yet had not been made in the English Garden, and that will be considered further as we proceed. As with his color theory, Goethe’s social theory of park design has polarities and dualities at its heart – affirming mathematician Robert Lawlor’s more recent description of the social truths revealed by scientific enquiry:

*We know now that we exist in groups, determined by various levels of energetic affinities, repelling, exchanging and absorbing through interconnected, subtle energetic communications. And our being extends outward through various energy fields to connect with larger fields. We have had to learn that there is nowhere that we can dispose of the things we have finished using - that there is no zero drain in our sink; there is no factory pipe or hole in the ground that does not lead somewhere. Everything remains here with us; the cycles of growth, utilization and decay are unbroken. There is no throwaway bottle.<sup>33</sup>*

Goethe’s novel had a greater impact than his park, and among later reflections Max Weber (1864-1920) cited Goethe’s novel when arguing against Karl Marx, describing the rise of capitalism as subject to a number of social, cultural, and historical *elective affinities* rather than purely economic considerations,<sup>34</sup> and Walter Benjamin’s essay ‘Goethe’s Elective Affinities’ of 1924 provides an early example of subjecting literary subject matter to a process of intensive dialectical mediation, arguing for the possibility of the transcendence of mythic thinking (which he attributes to Goethe) in favor of the possibility of an as-yet-un-encountered (and, in principle, unimaginable) “freedom.” But as with Goethe himself, Benjamin locates this experience in art, through which it is only possible to transcend myth – Goethe is thus a forerunner of the art of park systems.<sup>35</sup>

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<sup>32</sup> Jeremy Adler, “Goethe’s Use of Chemical Theory in His Elective Affinities (Chapter 18),” in *Romanticism and the Sciences*, ed. Andrew Cunningham and Nicholas Jardine (Cambridge: Cambridge University Press, 1990), 263; As cited in Mauro Gallegati, Alan P. Kirman, and Matteo Marsili, *The Complex Dynamics of Economic Interaction: Essays in Economics and Econophysics* (Springer Science & Business Media, 2012), 381.

<sup>33</sup> Robert Lawlor, *Sacred Geometry: Philosophy and Practice: 1989 Edition* (London: Thames ] Hudson, 1982), 20.

<sup>34</sup> A.M. McKinnon, “Elective Affinities of the Protestant Ethic: Weber and the Chemistry of Capitalism,” *Sociological Theory*, 28, no. 1 (2010): 108–26.

<sup>35</sup> N. K. Leacock, “Character, Silence, and the Novel: Walter Benjamin on Goethe’s Elective Affinities,” *Narrative* 10, no. 3 (October 1, 2002): 277–306, <https://doi.org/10.1353/nar.2002.0018>.



[fig22\_Park an der Ilm] KSW



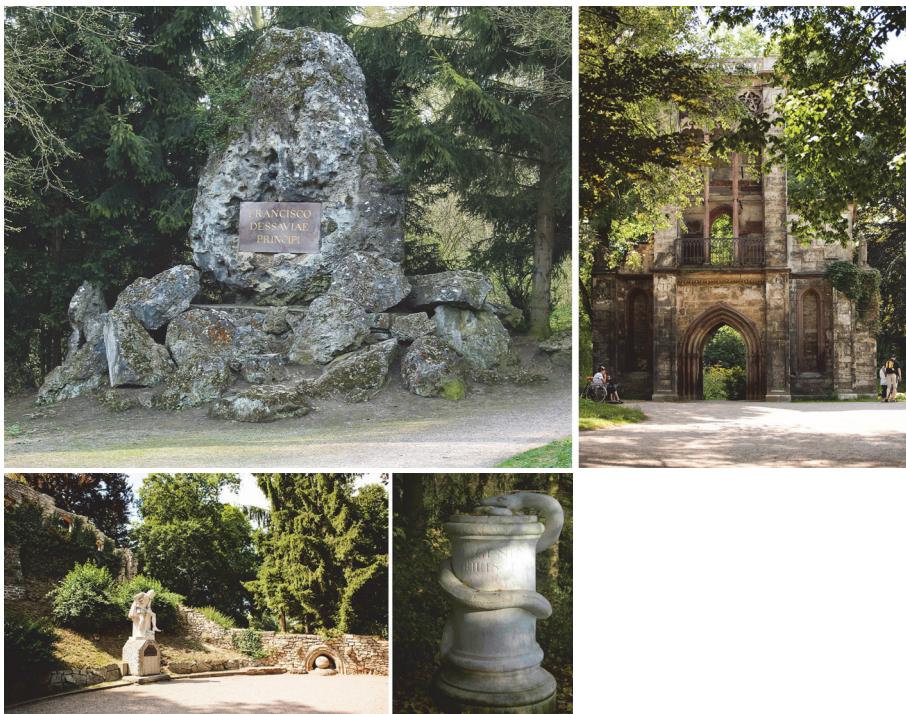
[fig23\_Goethe\_Gartenhaus] KSW



[fig24\_Park an der Ilm] Park System Diagram. KSW



[fig25\_Park an der Ilm] Views. KSW



[fig26\_Monuments and artificial ruins] KSW

### 1789 – Repton's Ferney Hall, West Midlands

Humphry Repton (1752 – 1818) has been described as ‘the last great English landscape designer of the eighteenth century’, and is generally regarded as the successor to Lancelot ‘Capability’ Brown.<sup>36</sup> Born into wealth, Repton briefly engaged in a career in business, but as we will see with a number of the figures we encounter, he returned to the countryside where he learned the rudiments of land management, the supervision of laborers, and developed his skills in surveying and painting watercolor landscapes.

Having established himself as a ‘landscape gardener’ in 1788 – a phrase he coined himself<sup>37</sup> - Repton’s oversized ‘trade card’ (6.7 x 9.5 cm) from that year illustrates the scope of his work in a suggestive vignette of the complete design process: in the foreground Repton is shown operating a theodolite – a surveying instrument similar to, but more precise than, a transit – his arm extended in a gesture of command, with his assistant at the ready; in the middle ground a group of laborers is seen, ostensibly implementing his design, the outstretched arm of a foreman echoing Repton’s own gesture; in the background is a tower in silhouette, the point of focus in the image, suggesting the continuity of landscape and its architectural culmination. *[fig27\_repton\_trade\_card]* Repton’s capabilities as a landscape gardener were thus illustrated as being technical, social, and artistic in nature. His disciplinary success, and one of the main reasons he is remembered today, is also attributable to the novelty and clarity of his design presentation in his ‘Red Books’ - a term referring to their characteristic red leather bindings. Repton regarded his Red Books as working plans, advertisements, souvenirs, and a convenient source of documentation he could use in his publications. He claimed to have created more than four hundred Red Books by the end of his career, and more than a hundred survive today.<sup>38</sup>

Typical Red Books – of uniform dimensions, approximately 8.5 inches high by 11.6 inches wide – include his trade card on the inside cover, and open with a ground plan summarizing his design proposals. An introductory text, deferentially addressing the client and recapitulating the terms of the commission, is followed by a description of the client’s property – praising its qualities, noting its defects, and proposing improvements – while the approach to the house, the park, the gardens, and other specific features are generally addressed in separate sections accompanied by watercolor illustrations. It is in these watercolor illustrations that Repton made his mark: they are often equipped with overlays allowing an easy back-and-forth – before and after – comparison of the existing conditions and Repton’s design recommendations for its future embellishment. *[fig28\_repton\_overlays]* Such overlays had been used in scientific and astronomical publications for

<sup>36</sup> “Humphry Repton | British Landscape Designer,” Encyclopedia Britannica, accessed September 23, 2017, <https://www.britannica.com/biography/Humphry-Repton>.

<sup>37</sup> George Carter, Patrick Goode, and Kedrun Laurie, *Humphry Repton, Landscape Gardener, 1752-1818* (London: Sainsbury Centre for Visual Arts, 1982), 34.

<sup>38</sup> “Humphry Repton’s Red Books,” The Morgan Library & Museum, April 1, 2014, <http://www.themorgan.org/collection/Humphry-Reptons-Red-Books>.

years, and while Repton was likely familiar with these he would certainly have known of the overlay books made for children first created Robert Sayer in 1765.<sup>39</sup> Sayer, a leading publisher of prints, maps and maritime charts in London, originally called these books ‘metamorphoses’: inspired by the theatrical performances of his day, and the overlays were treated as the changing scenes of a play which, when lifted, revealed the next scene of the narrative.<sup>40</sup> It is commonly assumed that Repton’s use of overlays was influenced by those used in Gray’s Anatomy, but the first edition of this book was not published until 1858.<sup>41</sup>

This early use of overlays in landscape design anticipated the further development of this important graphic method in the 20<sup>th</sup> century by such regional designers as Phil Lewis, Angus Hills and Ian McHarg and its subsequent proliferation through contemporary GIS systems.<sup>42</sup> Taking into account the use of this method by many of the designers relevant to this study, Anne Whiston Spirn has written that further evidence of “this pantheon ranges from Hippocrates and Aristotle to Alberti and Leonardo; from John Evelyn and J.C. Loudon to Joseph Paxton, Frederick Law Olmsted, and Charles Eliot; from Frank Lloyd Wright to Kevin Lynch and Lawrence Halprin; and from Patrick Geddes to Lewis Mumford...”<sup>43</sup> – curiously omitting Repton’s historic innovation.

Among Repton’s earliest Red Book’s was that for the Ferney Hall estate in the West Midlands, the year after he founded his practice.<sup>44</sup> His client was one Samuel Phipps, a prosperous attorney who had purchased the estate around 1787 and had initially hired a local gardener to lay out the grounds - evidently dissatisfied with the results, he invited Repton to inspect his property over the course of three days in September 1789.<sup>45</sup> This early Red Book opens with a graphic medallion on the opening page, facing his trade card, effectively a compass labeled ‘Mr. Repton’s Opinion of Aspects’ in which the four cardinal directions and their four interpositions are assessed on a scale from ‘Best, Good, Not Bad, Bad’ to ‘Worst’ – in this case the southeast aspect is ‘Best’ while the southwest is ‘Worst’. *[fig29\_red book\_medallion]* There are three overlays in the book, and consistent with the

<sup>39</sup> Ellen G.K. Rubin, “A Timeline History of Movable Books,” accessed April 5, 2017, <http://www.popuplady.com/about02-timeline.shtml>.

<sup>40</sup> “Notable Pop-Ups & Movables,” *Smithsonian Libraries* (blog), October 6, 2009, <https://blog.library.si.edu/2009/10/new-notable-popups-movables/>.

<sup>41</sup> Henry Gray, *Anatomy: Descriptive and Surgical*, 1st ed. (London: J.W. Parker, 1858), n. There is some uncertainty about when overlays were first used in this book, given the various editions that appeared, but it seems likely to have been the 1918 edition, which was also the first to have used color illustrations.

<sup>42</sup> Carl Steinitz, Paul Parker, and Lawrie Jordan, “Hand-Drawn Overlays: Their History and Prospective Uses,” *Landscape Architecture*, September 1976.

<sup>43</sup> Anne Whiston Spirn, “Landscape Architecture and Environmentalism,” in *Environmentalism in Landscape Architecture*, ed. Michel Conan (Dumbarton Oaks, 2000), footnote 36 p.113.

<sup>44</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 166, note: The inventory provided by Carter, et. al. does not list the Ferney Hall Red Book, but the first listed here is Brandsbury, March 1789 and the second is Holkham, October 1789-given the dates of Repton’s visit the Ferney Hall Red Book thus seems likely to have been either the second or the third produced.

<sup>45</sup> “About Ferney Hall,” The Morgan Library & Museum, April 2, 2014, <http://www.themorgan.org/collection/Humphry-Reptons-Red-Books/about-Ferney-Hall>.

nature of the turning of a page to reveal intended improvements, in each case the overlays show a distinctly ‘via negativa’ approach to design, removing formal elements – an entry gatehouse and perimeter brick wall, in the first instance, and in the second instance the penetration of a formal planting boundary which he describes as follows: *[fig30\_ferney hall\_drawing room overlay]*

*...the following Sketch will give some faint idea of what may be effected: instead of a confined gloomy look, upon an orchard bounded by thick Wood, and confin'd by a strait line of hedge, the judicious removal of some branches of a few trees will present the most majestic object in nature, a venerable wood hanging down a steep bank and reflected in water...*

Along similar lines, the third overlay is a grand, double-wide image of ‘The View from the Front Rooms’, *[fig31\_ferney hall\_front room overlay]* in which a formal terrace and the brick perimeter fence is removed, as he writes:

*Unfortunately the extravagance and false taste of former Times, makes some Expense necessary here to restore the Ground to its original form, yet this will not be so difficult as it may at first appear, because though the substration of the soil is rock, yet none of that will require moving, as it is only the made-earth that must be thrown back into its original place, to destroy the formal terraces which disfigure the beautiful prospect before us; the following Section of the Ground from the Levels taken will show all that is necessary.*

Such conservation-mindedness shows Repton’s sensibility to have been characterized by *continuity* – a term explicitly favored by such inheritors of his legacy as Olmsted, Geddes, Wright and Lewis – systematically deployed in topographic design moves. *[fig32\_ferney hall\_section]* In Repton’s work there is historic and spatial continuity, to begin with – of the sort attained by *via negativa* clarification – and also a kind of continuity in the treatment of planting that recalls Goethe’s ‘missing link’ river park and is suggestive of the park systems that were to come – it is multifaceted landscape design that is responsive to the interplay of existing conditions, desired functions, available means, and climatic considerations.

Nevertheless, the Ferney Hall project was to prove instrumental in a polemic public debate that came to be known as the *picturesque controversy*.<sup>46</sup> It happened that not far from Ferney Hall resided Richard Payne Knight, a member of Parliament and author of several books on art and aesthetics. Repton had deferentially consulted with this distinguished neighbor, who initially “dreaded the approach of a professed improver” but found that Repton was “a man of liberal education” and that they agreed in many matters of style. Knight evidently approved of the plan to remove the formal terrace, restoring the original view from the front rooms, and liked the idea of pruning the trees

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<sup>46</sup> John Dixon Hunt, *Gardens and the Picturesque: Studies in the History of Landscape Architecture* (MIT, 1994), 288.

outside the drawing room to provide a view of the distant water reflections - he also claimed to have had "pleasing expectations" about Repton's work - but Repton's work apparently was not radical enough for Knight, and having seen the plans he said they "instantly undeceived me."<sup>47</sup>

In April 1794 Knight initiated the *picturesque controversy* with his publication of *The Landscape: A Didactic Poem addressed to Uvedale Price*, a satiric attack on the garden designs of Brown and Repton, and Price himself joined the attack with his *Essay on the Picturesque* in May.<sup>48</sup> In essence, Knight and Price were radical proponents of the picturesque and felt the work of Brown and Repton was dull and monotonous when compared to the wild, dramatic landscapes they had learned to appreciate in paintings. Preferring rustic gardens with naturalistic features like woodlands rather than clustered trees in a placid expanse of lawn, they accused Repton – somewhat unfairly, it must be said – of stultifying uniformity. Knight had designed his own landscape garden in accordance with picturesque principles, which compared with the nuanced designs of Repton were decidedly one-sided. Rather than hiring landscape gardeners to "torture their estates," they believed that it was better to 'do it yourself': gentlemen should decide on their own how to bring out the best in their parks and pleasure grounds according to picturesque artistic principles.<sup>49</sup> Using Repton's innovative method of comparative imagery against him, Knight hired the artist Thomas Hearne to illustrate his *Didactic Poem* with images depicting a caricature of a 'Brownian park' as uniformly denuded lawns as compared to an idealized 'Picturesque park' with lush variety of dense growth. [fig33\_the landscape\_illustrations]

Taken aback by the virulence of this one-sided criticism, Repton responded with his copiously illustrated *Sketches and Hints on Landscape Gardening* (1795), which had also been planned for publication in 1794, but which he chose to defer issuing until the following year so that he could include supplementary remarks responding to his critics with an acknowledgment of their concerns, a defense of Lancelot Brown, and a conciliatory assessment of the common ground he sought between 'Brownian' and 'picturesque' principles – a ground, he suggested, that was contextually determined.<sup>50</sup> The book's extensive illustrations further develop his comparative graphic method by emphasizing differences in context as side-by-side images. [fig34\_ concave convex] Knight soon fired back with a second edition of his *Didactic Poem*, now explicitly criticizing Repton's plans for Ferney Hall: rather one-sided battle lines were thus drawn, and others joined the fray which was played out through publications and periodicals, some going so far as to question the patriotism of their adversaries.<sup>51</sup>

<sup>47</sup> "About Ferney Hall."

<sup>48</sup> Patrick Goode, "The Picturesque Controversy," in *Humphry Repton, Landscape Gardener, 1752-1818*, ed. George Carter and Kedrun Laurie (London: Sainsbury Centre for Visual Arts, 1982), 34.

<sup>49</sup> "The Picturesque Controversy," The Morgan Library & Museum, April 2, 2014, <http://www.themorgan.org/collection/Humphry-Reptons-Red-Books/The-Picturesque-Controversy>.

<sup>50</sup> Humphry Repton, *Sketches and Hints on Landscape Gardening: Collected from Designs and Observations Now in the Possession of the Different Noblemen and Gentlemen, for Whose Use They Were Originally Made. The Whole Tending to Establish Fixed Principles in the Art of Laying Out Ground* (London: W. Bulmer and Company, 1794).

<sup>51</sup> "About Ferney Hall."

Throughout this polemic exchange Knight and his Picturesque advocates often employed rather deceitful, underhanded means in making their point. Hiding behind the shield of satire – and evidently intent on character assassination – they misrepresented Repton's position, misquoted passages from his texts to score points, and snidely exaggerated the differences between their respective positions with simplistic and unflattering caricature.<sup>52</sup> For his part Repton's tone was consistently gracious and dignified, and one senses that he was defending his position more in sorrow than in anger, insisting that a garden should be multifaceted and fit for human habitation, a principle ‘not to be sacrificed to Picturesque effects’, although he gladly incorporated Picturesque values as well – ‘in [their] proper places’.<sup>53</sup> Through the course of this polemic exchange Repton's aforementioned sense of *continuity* was thus sharpened as he was forced to more explicitly address the benefits attained by *difference*, sensitizing him to the productive dualism of contrasting unity and variety.

Repton's work with the architect John Nash throughout the 1790s highlights this point, the two joining forces in 1792 to provide their clients with a package of house-and-garden combined, fruitfully polarizing landscape and architecture in heightened contrast. Their work together was well-received, and amidst growing popular success Repton increasingly turned his interest to urban as well as rural settings, as British landscape architect Dame Sylvia Crowe (1901-1997) has written:

*His work in urban design, exemplified in his collaboration with Nash, pioneered the tradition of free-growing trees and flowing landscape related to civic design... The landscapes of modelled land-form, sheets of water and drifts of forest trees, once designed as the settings for great country houses are now created not only to form the *pleasaunces* [pleasure gardens] of entire new towns, but also to contain within the countryside such modern industrial structures as power stations, or to form the setting for reservoirs and dams. The success of this adaptation is a tribute to the integrity of the original intention to distil the spirit of the English countryside.*<sup>54</sup>

But the two fell out amidst recriminations in early 1800, with Repton accusing Nash of exploiting their partnership to his own advantage, stealing his ideas and taking credit for his work as well as that of his son, architect John Adey Repton (1775-1860)<sup>55</sup> – who had also closely collaborated with Nash on numerous projects, such as Corsham Court (1797-8), but Nash never acknowledged his contribution to this or any other commissions.<sup>56</sup> Writing in his Memoirs at the end of his life, Repton reflected on his work with Nash - their initial enthusiasm in working together, and on his eventual disappointment in Nash's dishonesty. Repton's two volume Memoir was written at the end of his life, and the first part

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<sup>52</sup> Goode, “The Picturesque Controversy,” 34–37.

<sup>53</sup> “The Picturesque Controversy.”

<sup>54</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 128.

<sup>55</sup> Dorothy Stroud, *Humphry Repton* (London: Country Life, 1962), 119.

<sup>56</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 129.

was published in 1840 by Repton's successor John Claudius Loudon – whom we will meet in the following section – while the second part only recently came to light and was published for the first time in 2005.<sup>57</sup> With characteristic gentility, he does not call Nash by name, but it was nevertheless inserted posthumously by an editor in 1865. As representing a theme that will return throughout subsequent interactions between landscape designers and architects, it is a passage that merits quoting at length:

*[In 1790 the Honorable] Edward Foley said in his peculiar manner - that he wanted to bring me acquainted with a very talented Architect, adding - "If you two, whom I consider the two cleverest men in England, could agree to act together you might carry the whole world before you!" Now this was a bait exactly suited to my aspiring vanity! So I consented to the introduction [to Mr Nash]!- and We met - We were charmed with each other at the very first interview! Two such congenial minds were never brought together since the days of David and Jonathan! – or Pylades and Orestes! We acted as with one joint Soul! Our homes were alternately united - whether in Town or Country, our carriages – our Offices (in which my sons assisted) were the property of both – We jointly designed and built houses at places where I or he had previously been concerned, and I felt that my income was certain to increase greatly from the percentage, which it was agreed we should share between us - I had now reach'd the pinnacle of my expectations and I felt a degree of confidence and affection for my friend which I thought nothing could ever alienate -but alas! Ehu fugaces! - After more than five years of happiness and undiminished cordiality, and the Dream of promised hope of mutual wealth from the 'thousands we were to Share' - I was startled by the announcement that there was 'nothing due to me!' – and that 'board of my two Sons' (who had given us the whole of their time and labour in the office) 'had swallowed up anything I might consider due to me from the profits of our professional engagement'- and from some flaws in our agreement which had been drawn up by himself – I was defied, when I presumed to urge my claims! and to this day I have never received a farthing of the money!...But I have done with resentments, and forgive him from my soul. Tho' I never can forget the delight and satisfaction which I enjoyed (and lost!) in a companion possessing one of the most able heads I have ever known - he had powers of fascination beyond anyone I had ever met with...and this perhaps is the more to be wondered at in as much as his personal appearance was far from prepossessing! This was the most bitter disappointment of my life. It made a great change in my prospects – Our success had excited the jealousy of other Architects - while my golden dreams of a double income vanished in smoke . . . For it had proved to me that 'The two cleverest men in England' - The one was a fool and the other? - ah well! He has indeed 'carried all the world before him' but he has left me behind for the present.<sup>58</sup>*

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<sup>57</sup> Humphry Repton, *Humphry Repton's Memoirs*, ed. Ann Gore and George Carter, 1st ed. (Norwich: Michael Russell Publishing Ltd, 2005).

<sup>58</sup> Humphry Repton, *Memoir* (London, 1840), 83–84; as cited in Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 135.

As in this instance, we will encounter several further examples of the significant contributions of landscape designers being systematically neglected, usurped, or stolen by ambitious architects. Thus it was that Repton severed his connection with Nash and took his son into partnership, making a public announcement to this effect in a printed broadsheet dated April 10, 1800.<sup>59</sup>

The first work produced by this new family partnership was the Red Book for Bayham Abbey, issued in June of 1800. This was to be one of the most complete Red Books he was ever to produce - a robust synthesis of his personal and collaborative ambitions, a productive affirmation of the lessons he had learned through the contentious polemic of the *picturesque controversy* and the disappointing conclusion of his partnership with Nash. Once again in this Red Book, Repton clearly emphasizes the need for a detailed knowledge of existing circumstances, as revealed by geographical survey, as the basis for landscape design – a point driven home by his side-by-side images of existing conditions marked out with poles showing projected heights and the realized vision, as in his *[fig35\_bayham abbey\_existing conditions]* In it he describes the Bayham Abbey project as the 'Application of Gardening and Architecture united, in the formation of a new place' – a statement that also provides an apt description of the park systems to come.<sup>60</sup> Repton went on to refine his methods, and by the time of his proposal for the prestigious Royal Pavilion, at the request of the Prince of Wales in 1805, he came to employ an ingenious binary system integrating surveying and design – by staking out a grid of squares and grading the ground within them, Repton developed a cut and fill method minimizing the disturbance of existing conditions while maximizing formal coherence, and creating a subtle effect which he described as 'raising the hills, and sinking the hollows,' lending his designs heightened contrasts of prospect and refuge, of light and shadow.<sup>61</sup>

Before leaving the English rural condition for its urban counterpart, it is worth noting that on July 14 in 1789 – the year the Ferney Hall project began – the Bastille was stormed in Paris. July 14 is a date now regarded as the turning point in the French Revolution, and celebrated as the day the French Republic was born: the site of the Bastille has remained a void, a *via negativa* urban memorial of absence. Historian Simon Schama has commented on this period remarking that 'on the eve of the Revolution, and from apparently opposite corners' the French and British forestry practices were in fact converging.<sup>62</sup>

*For although the monarchy seemed to be in control in France, and the landowning class in England, the battles being fought on both sides of the Channel for the posterity of their forests were virtually identical. In the oakwoods of Sussex or the forests of the Morvan and the Vosges, a triangular (and unequal) contest*

<sup>59</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 129–30.

<sup>60</sup> "Bayham Abbey, Kent - 1000257," Historic England, accessed September 24, 2017, <https://historicengland.org.uk/listing/the-list/list-entry/1000257>.

<sup>61</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 16.

<sup>62</sup> Simon Schama, *Landscape and Memory* (New York: Knopf, 1995), 179.

*for precious timber was under way. At one corner were those-merchants, contractors) stewards, tenant farmers-who had shrewdly bought up a piece of woodland and who looked on the trees as so much standing capital, to be realized or reinvested as the market dictated. At the other corner were the landless poor whose survival depended on the defense, violent if necessary, of traditional rights to gleaning, gathering, and cropping. And at the apex of the triangle were the officials of the state, increasingly desperate about the shortage of ship timber and suffering from nightmares of the last pine and the last oak snatched by the Other Side.<sup>63</sup>*

What was different in France was that the Revolution there was ‘less concerned with realities than with justice and retribution’ and the Royal Forest Corps – ‘the men in blue coats...who bore the brunt of popular fury in 1789’ – were powerless to stop the destruction of over 80% of the forests they were responsible to protect by 1790, as Schama writes:

*In the forests there was a general and joyous slaughter of game while herds of cows and flocks of pigs turned the preciously guarded reserves into a great green feeding trough... And while liberty trees-a political adaptation (via America) of the traditional Maypole symbols of fertility and rebirth-were going up all over France, Colbert's precious grande futaine was coming down. Liberated from the custody of the masters and grand masters of the Eaux et Forêts, the forests were virtually open to all comers; and facing winters at the end of the eighteenth century that were at least as brutal as those at the beginning, the poor of the French woodlands helped themselves. "They take wood as though it were cabbages in their garden," complained one local official...<sup>64</sup>*

The situation was quite similar in Britain, but for more purely economic reasons – the early industrial revolution there had made wood an increasingly precious commodity and prices were driven so high that institutional corruption was correspondingly elevated. Regarding the French situation more research is clearly warranted, as the primary literature has yet to be widely disseminated – for example, Schama refers in footnotes to Daniel Solakian’s *De la multiplication des chèvres sous la Révolution* as ‘indispensable for an understanding of the effects of the French Revolution on forests’ but neither this essay nor the book in which it is featured, *Révolution et espaces forestiers: Groupe d'histoire des forêts françaises*, edited by Denis Woronoff, have been translated into English.<sup>65</sup> In the case of Britain’s forests, Schama cites the reflections of Major Heyman Rooke of the 100th Regiment who had been tasked with inspecting the ancient royal forests there, and grieving over their loss:

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<sup>63</sup> Schama, 179–80.

<sup>64</sup> Schama, 180.

<sup>65</sup> Daniel Solakian, “De la multiplication des chèvres sous la Révolution,” in *Révolution et espaces forestiers: Groupe d'histoire des forêts françaises*, ed. Denis Woronoff (Paris: Editions L'Harmattan, 1987), 62–74.

*...be noted, gloomily that it was Sherwood [forest] that had suffered most grievance, it was left to art historians and psychologists to take seriously the possibility that myth and magic might obstinately make themselves felt, encoded in symbolic forms, in a world where, as Rudolf Wittkower has put it, “our lives are fenced in by rituals sunk to the level of conventions.” But a more dominant and conventional view was the opposite: that the vitality and authority of nature religions declined precisely to the degree that cultures were shaped by scientific, empirically derived knowledge.<sup>66</sup>*

Just as the healthy urge to ensure urban sanitation might, unrestrained, express itself as urban design that is overcompensating and sterile, when it comes to ‘natural resource management’ unchecked technocratic one-sided attitudes are ultimately destructive, and the issues encountered with such management and planning practices can be addressed by ecological and design disciplines. All of which highlights the point that the invention of public parks coincides with the accelerated destruction of forests in Britain and France, and, increasingly globally, in their colonial territories. It is as though the invention of parks was a reciprocal gesture of the industrial and popular revolutions, as existing areas – formerly royal land – were repurposed as public parks, replanted, and cared for with renewed purpose. It was then, in Paris and London – as in Weimar a decade earlier – that these early royal parks were collectively expanded upon and added to with innovative features that were often both explicitly ecological and purposefully civic.

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<sup>66</sup> Schama, *Landscape and Memory*, 180–81.



[fig27] **Trade card of Humphry Repton (1788)**] Designed by Repton and engraved by Thomas Medland, from the Red Book of Ferney Hall (1789). *Image: Collection of Mrs. J. P. Morgan, Jr.; 1954.17*



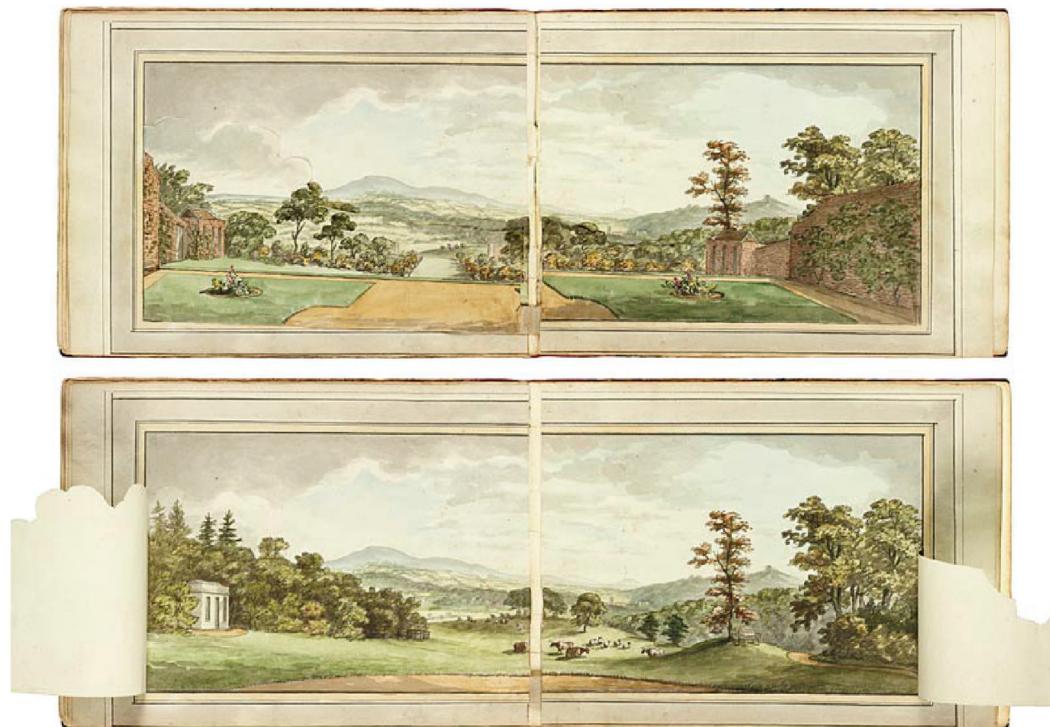
[fig28] **Repton's Red Book overlays**] As displayed at The Morgan Museum, 2010. *Image: Ellen G.K. Rubin*



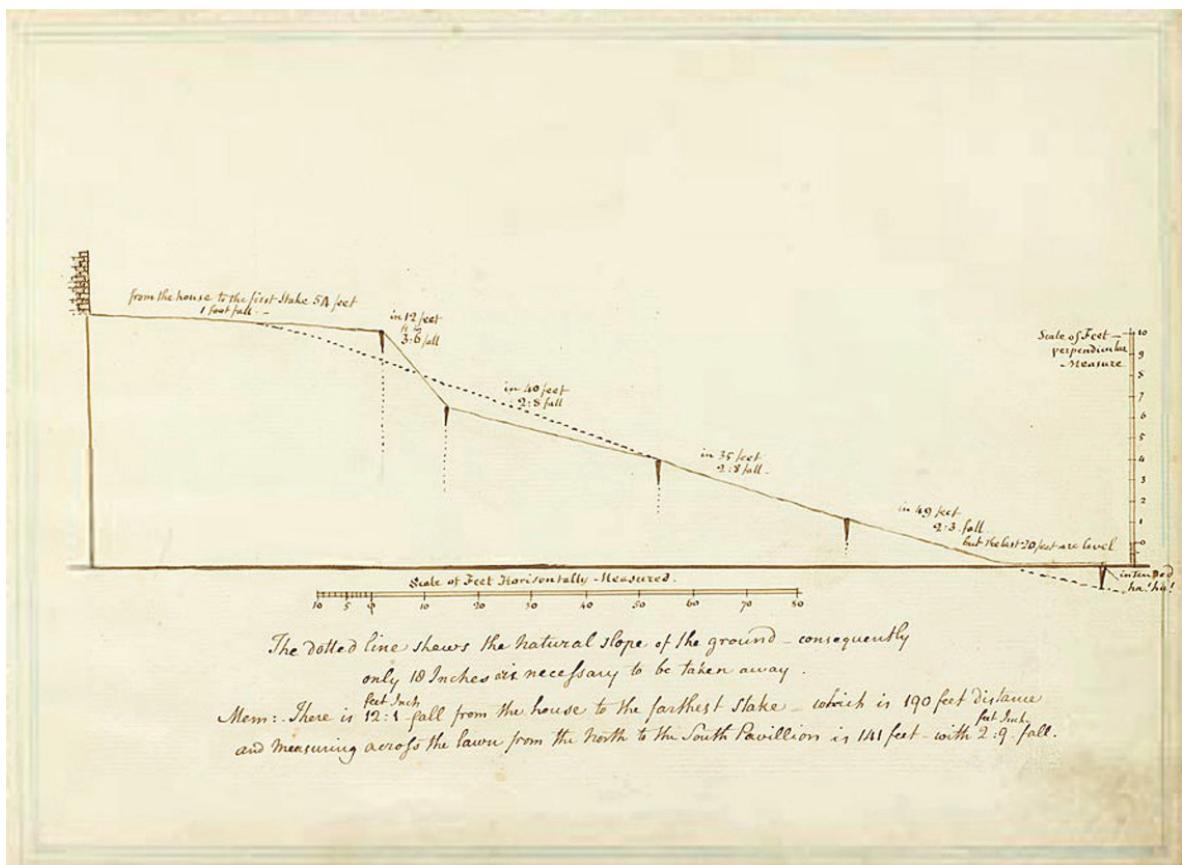
[fig29\_Mr. Repton's 'Opinion of Aspects' medallion] Ferney Hall Red Book (1789) p.1. MLM



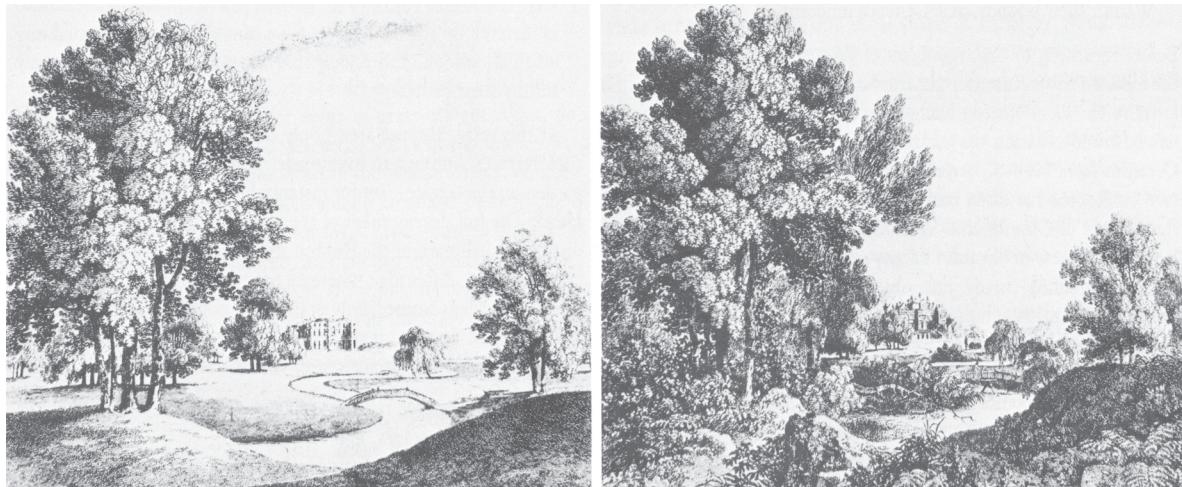
[fig30\_View from the Drawing Room] Before and after overlay, Ferney Hall Red Book (1789) p.9. MLM



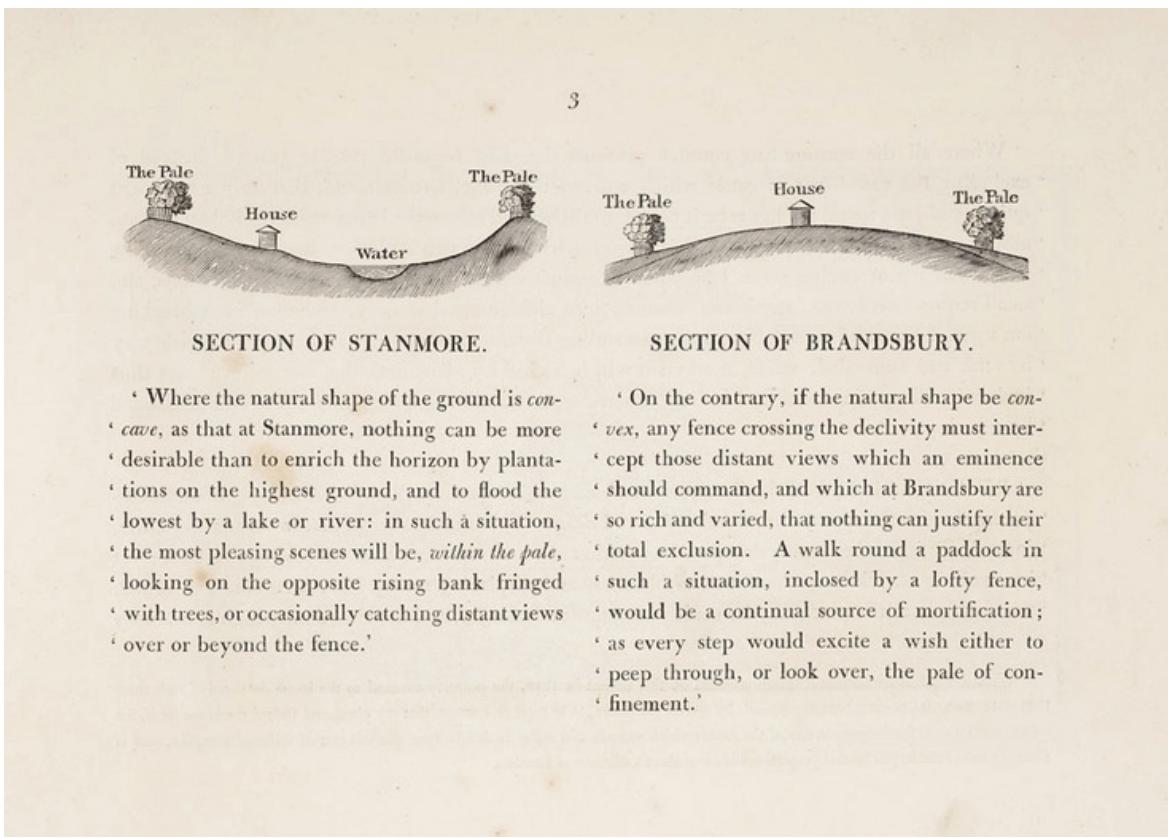
[fig31\_View from the Front Rooms] Before and after overlay, Ferney Hall Red Book (1789) p.14, MLM



[fig32\_Section of the Ground from the Levels taken] Ferney Hall Red Book (1789) p.11. MLM



[fig33\_ Thomas Hearne's illustrations for R.P. Knight's *The Landscape*, (1794)] showing a Brownian park (left) and a Picturesque park (right). LOC



[fig34] Comparative Qualities of Concave and Convex Sites  
Sketches and Hints on Landscape Gardening (1795) p.3. LOC



[fig35] Bayham Abbey, Kent (1800) Existing conditions marked with poles for height (right) and proposed design (left), annotated: "On this slide are shewn three Hop Poles of 50 feet at 100 feet apart, which together with my Chaise were placed at the Spot described to serve as a Scale for the Relative Proportion of Objects" Bayham Abbey Red Book, p.55. MLM

*iv. The Invention of Public Parks (1800-1900)*

*1806 – Nash and Fordyce’s Regent Street*

Having parted ways with Humphry Repton, John Nash (1752-1835) went on to become responsible for much of the layout of Regency London, in which the Prince Regent was his patron. Even so, among Nash’s many pupils and assistants were Humphry Repton’s sons, John Adey Repton and George Stanley Repton, and among Nash’s three most famous works two are closely tied to Repton, again for reasons of priority and attribution.<sup>67</sup>

The Royal Pavilion in Brighton, the same one Repton had been asked to design in 1805, was actually built by Nash from a decade later from 1815-22. The Prince had evidently found himself unable to finance Repton’s ambitious design in 1805, and when he employed Nash to undertake the same project ten years later it was done with ‘presumably unconscious insensitivity,’ given Nash’s history with Repton.<sup>68</sup> And Repton soon had a new reason for disappointment, if not for resentment, as Nash’s building employed the distinctly Indo-Islamic mode of massing and striking articulation Repton’s novel design had initially proposed – with, as one historian opines, ‘surprising freshness for an increasingly conservative man in his mid-fifties.’<sup>69</sup> Nash’s star continued to rise, and in 1826 Nash was retained by King George IV to design perhaps his most famous project: Buckingham Palace. However his consistent advice to enlarge the project, and his insistence upon increasingly extravagant designs despite the King’s expressed interest in ‘the idea...of a small, comfortable home’, led to his dismissal from the project in 1829, and the project remained unfinished until Buckingham Palace became the principal royal residence on the accession to the throne of Queen Victoria in 1837.<sup>70</sup> It is worth noting that by 1847 the Queen found that the palace was, indeed, too small for court life and for her and Prince Albert’s growing family – with the result that a new wing was soon begun and completed in 1850.<sup>71</sup>

It is the first of Nash’s three great architectural accomplishments, the Regent Street plan of 1811, that was the most unusual in form and conception – and certainly the closest to his work with Repton for a number of reasons. *[fig36\_nash\_regent\_street]* First of all, it was in his capacity as the Surveyor General to the First Commissioner of Woods and Forests that he became responsible for the project upon his appointment to that position in 1805. Nash’s predecessor at the Office of Woods and Forests, Parliamentarian John Cornelius Fordyce (1735-1809), had scheduled for the implementation

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<sup>67</sup> Howard Colvin, *A Biographical Dictionary of British Architects, 1600-1840* (New Haven: Yale University Press, 2008), 580–81.

<sup>68</sup> Carter, Goode, and Laurie, *Humphry Repton, Landscape Gardener, 1752-1818*, 23.

<sup>69</sup> Carter, Goode, and Laurie, 23.

<sup>70</sup> “Buckingham Palace: The Royal Residences,” The British Monarchy (official website), March 27, 2010, <https://web.archive.org/web/20100327220845/http://www.royal.gov.uk/TheRoyalResidences/BuckinghamPalace/BuckinghamPalace.aspx>.

<sup>71</sup> John Harris, Geoffrey De Bellague, and Oliver Millar, *Buckingham Palace and Its Treasures* (New York: Viking Press, 1968), 33.

of a general design by 1811. Having thus inherited the project Nash further developed it according to his own sensibility, but – as with his inheritance of Repton's exotic design for the Royal Pavilion – substantially as conceived by Fordyce, his unacknowledged collaborator.

It was a position – and a project - for which Repton's innovative surveying techniques had prepared him, and had perhaps uniquely qualified him. The winding trajectory of Regent Street reflects the nature of private property rights in London, and Nash's reliance on private financial involvement meant that he had to accommodate multiple interests and various programs – all of which lends Regent Street a distinctly 'picturesque' variety.<sup>72</sup> The major innovation of the project, and its relevance to a chronology of park systems, derives from its form and purpose: like Goethe's 'missing link' pedestrian project of Park an der Ilm of some twenty years earlier, Fordyce's idea for the project Nash built was also to create a 'missing link' for pedestrian mobility connecting two royal parks – but instead of connecting these parks with an ecological river corridor, as in Weimar, it would connect them with a grand urban boulevard literally excavated, *via negativa*, from London's existing urban fabric.

*[fig37\_corridor\_missing link]*

The long term civic success of the Regent Street project was described by Patrick Geddes the following century, in his book *Our Social Inheritance: The Making of the Future*, where he describes Regent Street as 'a civic spirit which, with all its faults, strives ceaselessly for corporate and individual "life more abundant"... This civic quarter has become a perpetual fair, with a fringe of palaces.'<sup>73</sup> While acknowledging the civic success of the project – as a *cultural corridor* complementing the *natural corridor* of the public parks – he identifies the strength of the project as being expressed to some degree despite Nash's plans, rather than because of them. Invoking the landscape idea of *genius loci*, Geddes addresses it to this urban context, "How powerful is the spirit of the place let the story of Regent Street tell." He lays out his criticism of the project.

*Early in the nineteenth century, Nash, the dominant architect and town-planner of the day, backed by the strong arm of royalty, threw his energies into the designing and making of a sumptuous boulevard. It was intended to connect the newly made Regent's Park on the far north with the Regent's Palace, which stood where is now the York Column at the lower end, of Waterloo Place. In this grandiose design for Regency adornment he did not succeed. The spirit of the place was antagonistic and defeated the will of the town-planner and his royal supporter. What was actually achieved is that which the genius loci dictated. Lower Regent Street, if you think of it symbolically, is a ceremonious broadway linking into unity the refined luxury of Pall Mall and the commoner gaieties of Piccadilly Circus. Thus, by the construction of Lower Regent Street were the two foci of festivity made to work into more balanced adjustment.<sup>74</sup>*

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<sup>72</sup> John Summerson, "The Plans and Elevations of John Nash," in *Georgian London*, 1st ed. (London: Pleiades Books, 1947), 160–73.

<sup>73</sup> Victor Branford and Patrick Geddes, *Our Social Inheritance, The Making of the Future* (London: Williams & Norgate, 1919), 186.

<sup>74</sup> Branford and Geddes, 186–87.

Geddes clearly believed that Nash's mistake was his attempt to impose a formal idea of order where another 'informal' order – the *genius loci* – was already well established. This informal order in turn co-opted one of the key architectural elements of Nash's scheme – the arcades – enclosing them with glass, and opportunistically reinforcing the civic *genius loci* of the neighborhood:

*Nash, it is true, so far got his way as to build the Upper as well as the Lower Regent Street. But what has become of the massive arcading of the Quadrant... [those] ingenious devices, on which he depended for continuity round the bends in his curving boulevard? As for the arcading, that was promptly assailed as an obstruction to shopping, and most of it was soon replaced by the inevitable plate glass. The essential civic character of Upper Regent Street was thereby revealed as nothing but a bifurcation and extension north and south of that traditional shopping thoroughfare, Oxford Street... the general marketplace of London since time immemorial.*<sup>75</sup>

The architectural typology of the arcade has a unique and prestigious civic legacy. Augmented with sophisticated details developed in the climate-controlled glass houses of horticulturalists, one of the first such built was the Burlington Arcade – a covered shopping arcade consisting of a straight top-lit walkway lined with seventy-two storefronts, each with living quarters above. A part of the Regent Street project that runs behind Bond Street from Picadilly through to Burlington Gardens, it was built 'for the gratification of the public' at a time when the glass arcade was a new form of retail shopping designed to serve the growing middle classes.<sup>76</sup> Glass houses took on a new prominence after being memorably featured by Paxton in the Crystal Palace at Hyde Park – an exuberantly oversized park pavilion for London's Grand Exposition of 1851. Variations on the arcade have been important civic elements in from Milan's *Galleria Vittorio Emanuele II* (1877) to Frank Lloyd Wright's *Florida Southern College* (1938) and *Marin County Government Center* (1958).

Indeed, it is often presumed that climate-controlled glass corridors in urban settings come from Italy – Milan wears them well, *la magnificenza civica* – but they appear to have been initiated *en force* in Paris first and their social significance has been well documented. For example, in Walter Benjamin's *Passagenwerk*, or *Arcades Project* – an unfinished project written between 1927 and 1940 and described by one critic as 'one of the most significant cultural documents of the Weimar Republic and Nazi era'<sup>77</sup> – he reflects on life in Paris in the early 19th century, emphasizing the distinctive street life that existed within Paris's iron and glass-covered arcades (*passages couverts de Paris*) – built primarily in the first half of the century, of which by the 1850s there were approximately 150 - identifying the arcades as an ideal habitat for the *flâneur*.<sup>78</sup> By now this type of architectural project, born from the

<sup>75</sup> Branford and Geddes, 187–88.

<sup>76</sup> Laura Byrne Paquet, *A Social History of Shopping: The Urge to Splurge* (ECW Press, 2003), 93–95.

<sup>77</sup> Beatrice Hanssen, *Walter Benjamin and the Arcades Project* (A&C Black, 2006), 112.

<sup>78</sup> Susan Buck-Morss, *The Dialectics of Seeing: Walter Benjamin and the Arcades Project* (MIT Press, 1991).

sensibilities of landscape architecture applied in an urban civic context, has a long legacy – at larger scales it is variously characterized as armatures and infrastructures – these are architectural systems of continuity, cultural corridors as counterparts to the natural corridors of *park systems*. This *dual system* network is a formal model explicitly advocated regional by late *civic designers*, and again more recently by others.<sup>79</sup> [fig38\_regents\_park\_london\_walls] Concluding his critique of Nash's *Regent Street* Geddes identifies Waterloo Place as among his outright successes:

*Contemplating Waterloo Place as it is today and holds promise of becoming tomorrow, one is confirmed in the opinion that Nash planned better than he knew, and that in more senses than one. By the demolition of...the Regent's Palace...a superb window was opened from Waterloo Place into St. James's Park. A first-rate possibility was thus offered to civic architect and sculptor, of making a "Grand Place," and indeed something more. One statue after another has appeared, and so there are gathering elements of what may yet be as fine a Forum as any. For where there is noble sculpture, there nobility of civic life should be not far to seek.*<sup>80</sup>

At Waterloo Place once again ‘the trope’ is strongly evident, and I believe it is here that the popular idea of ‘civic center’ – and the consistent use of the trope in its expression - emerged. [fig39\_pugin\_waterloo\_place] Geddes explicitly refers to Waterloo Place that way when he describes Regent Street, ‘...the great shopping thoroughfare...is a route through Soho back to the civic centre.’<sup>81</sup> This project yielded these civic and pedestrian innovations, and later involved innovations and confrontations in water transport, railroad and tram use, and bicycles, as well.

Cartographer George Biggs's 1842 map of London clearly labels development of the railway lines then taking place, and the Birmingham railway is shown intersecting the Regent's Canal at Camden Town.<sup>82</sup> [fig40\_london\_surface\_map] This canal was enthusiastically promoted by Nash, and was built to facilitate the import of goods from the region. Its construction at the beginning of the era of sustained railway development, however, put it in direct competition with the railway lobby and its economic function soon became obsolete – although it survived several abortive attempts by the railroad lobby to convert the canal into a railway. This lobby, including the ambitiously named Regent's Canal Railway Company, was well funded and politically connected, going so far as to obtain

<sup>79</sup> See for example: Adriaan Geuze and Matthew Skjonsberg, “Second Nature – New Territories for the Exiled,” in *Landscape Infrastructure*, ed. Ying-Yu Hung and Gerdo Aquino, 1st ed. (Basel: Birkhäuser, 2010), 24–29; Laila Seewang, “Skeleton Forms: The Architecture of Infrastructure,” *Scenario Journal*, no. 3 (Spring 2013), <http://scenariojournal.com/article/skeleton-forms-the-architecture-of-infrastructure/>; Pierre Belanger, *Landscape as Infrastructure: A Base Primer*, Reprint edition (Abingdon, Oxon ; New York, NY: Routledge, 2016); Charles Waldheim, *Landscape as Urbanism: A General Theory* (Princeton University Press, 2016).

<sup>80</sup> Branford and Geddes, *Our Social Inheritance*, 188.

<sup>81</sup> Branford and Geddes, 164.

<sup>82</sup> Carlton Reid, *Roads Were Not Built for Cars: How Cyclists Were the First to Push for Good Roads & Became the Pioneers of Motoring* (Washington, DC: Island Press, 2015).

an Act of Parliament to enable their ambitions – boldly proposing that the railway bisect Regent's Park itself – but each of these schemes was abandoned in the face of vigorous and sustained popular opposition.<sup>83</sup>

This is the first of numerous examples we will encounter in which railroad interests sought to eliminate water-based transportation options like navigable rivers and canals, as they later sought to block the creation of park systems and the active mobility options they provided: namely walking and horseback riding, but also more explicitly, and from this moment, bicycling. It is worth making a brief aside here to acknowledge that the first commercially available bicycle was invented in 1817 as a nonlinear outcome of a series of events precipitated by the eruption of Mount Tambora in Indonesia on April 10, 1815. As a result 1816 was known as ‘the year without summer’, as the resulting climatic aberrations caused by the eruption – the largest in recorded history – included a ‘stratospheric sulfate aerosol veil’ resulting from the vaporization of an estimated 50 cubic kilometers of solid rock ejected into the atmosphere, blocking the sun and drastically changing weather patterns in North America and Europe the following year. Frosts in June and heavy rains throughout the summer in many areas led to food shortages, which accelerated westward migration in America and, in a Europe barely recovered from the Napoleonic Wars, led to widespread famine.<sup>84</sup>

The climatic effects of the volcano were most extreme in Switzerland, prompting a massive influx of people from the countryside to the city, and one eyewitness account from St. Gallen reports streets lined with beggars and prostitutes, gangs of pickpockets, and thugs attacking anyone with money.<sup>85</sup> In June 1816 Mary Shelley and Lord Byron were staying with friends at the Villa Diodati in Geneva, and because of the ‘incessant rainfall’ during that ‘wet, ungenial summer’ they remained indoors writing.<sup>86</sup> It was as a result of this experience that Shelley wrote *Frankenstein, or The Modern Prometheus*, and that Byron was inspired to write the poem ‘Darkness’ – on a day when “the fowls all went to roost at noon and candles had to be lit as at midnight.”<sup>87</sup> The famed landscape paintings of William Turner from that year similarly reflect the effects of the volcano in the dramatic, exaggerated colors that art historians have attributed to the atmospheric conditions Turner observed then.<sup>88</sup> The climate of that period has been researched by climatologist Michael Chenoweth, who used the detailed

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<sup>83</sup> “Regent’s Canal Railway,” *The British and Foreign Railway Review* 1, no. 1 (1845): 306.

<sup>84</sup> Clive Oppenheimer, “Climatic, Environmental and Human Consequences of the Largest Known Historic Eruption: Tambora Volcano (Indonesia) 1815,” *Progress in Physical Geography* 27, no. 2 (June 1, 2003): 230–59, <https://doi.org/10.1191/030913303pp379ra>.

<sup>85</sup> BBC 2, Cicada Films, and Elmar Bartlmae, *The Year Without Summer* (Time Watch, 2005), n. 18:05-53.

<sup>86</sup> Mary Wollstonecraft Shelley, *Frankenstein or The Modern Prometheus*, 2015th ed. (S.l.: Wisehouse Classics, 1831), 6; Note: Regarding narrative, Shelley’s story provides a fast-forward time-lapse instance of the transformation of nuanced fable, to fictional stereotype, to archetype - see for example: Zoë Lescaze, “The Pop-Culture Evolution of Frankenstein’s Monster,” New York Times, October 23, 2017, <https://www.nytimes.com/2017/10/23/books/review/christopher-frayling-frankenstein.html?nytmobile=0>.

<sup>87</sup> “1816: The Year Without Summer,” *In Our Time* (BBC Radio 4, April 21, 2016), <http://www.bbc.co.uk/programmes/b077j4yv>.

<sup>88</sup> BBC 2, Cicada Films, and Bartlmae, *The Year Without Summer*.

weather observations maintained in the logbooks of the British Royal Navy to reconstruct a detailed understanding of global weather patterns.<sup>89</sup> It is also interesting that many of these ships were then on anti-slavery patrols – further suggestive of the close interrelations of labor, mobility, and climate.<sup>90</sup>

Following the eruption the price of oats soared and horses were slaughtered for food – horses then being the primary mode of transportation – and as the months passed regional mobility was increasingly impaired. In 1817 Karl Drais, a German forester and inventor, had the idea to replace horse-power with human-power and on 12 June 1817, he set out to demonstrate his new velocipede, the direct ancestor of the modern bicycle.<sup>91</sup> In this way the bicycle, Shelley's novel, Byron's poems, and Turner's paintings all demonstrate nonlinear cultural outcomes of natural climatic events.<sup>92</sup> And it is from this moment that the bicycle and railroad began to compete for public rights of way – sometimes leading to bitter confrontations, as we will see – the railroad interest's monopolistic tendencies anticipating similar initiatives by automobile interests, in turn.

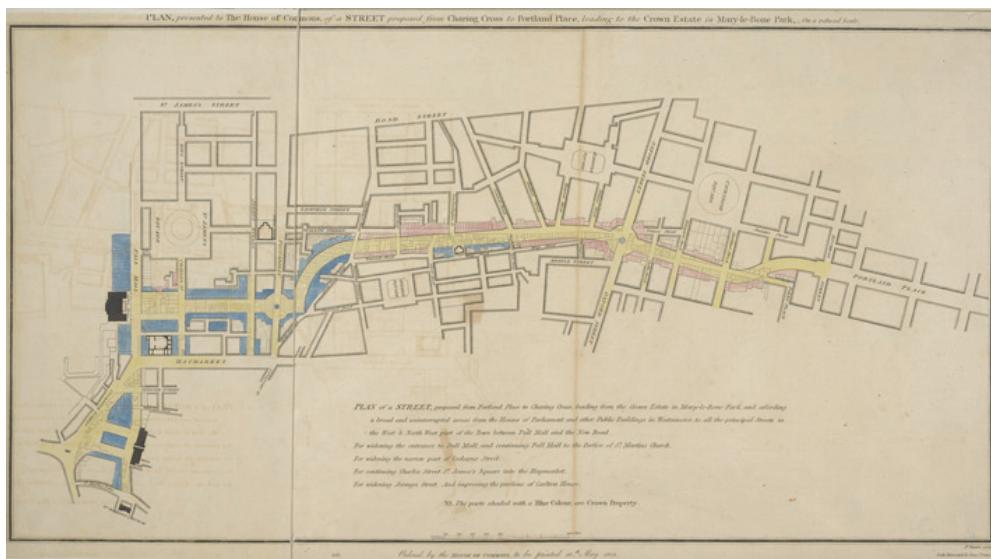
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<sup>89</sup> Dr. Michael Chenoweth, "Ships' Logbooks and 'The Year Without Summer,'" *Bulletin of the American Meteorological Society* 77, no. 9 (September 1996): 2077–93.

<sup>90</sup> "Chasing Freedom: The Royal Navy and the Suppression of the Transatlantic Slave Trade," accessed September 26, 2017, <https://www.history.ac.uk/1807commemorated/exhibitions/museums/chasing.html>.

<sup>91</sup> Mick Hamer, "Brimstone and Bicycles," *New Scientist*, January 29, 2005, <https://www.newscientist.com/article/mg18524841.900-brimstone-and-bicycles/>.

<sup>92</sup> Keith Veronese, "The Year Without a Summer, and How It Spawned Frankenstein," accessed February 12, 2016, <http://io9.gizmodo.com/5885668/the-year-without-a-summer-and-how-it-spawned-frankenstein>.



[fig36] John Nash, first Regent Street plan of 1811] As published in 1813 and titled 'PLAN, presented to the House of Commons, of a STREET proposed from CHARING CROSS to PORTLAND PLACE, leading to the Crown Estate in Marylebone Park.' As in the following drawing, the course of the street highlighted in yellow, with Crown property is highlighted in blue and private property in blue. *Image: Courtesy of British Library*



[fig37] Regent Street, 1811-2013] Cultural corridor as 'Missing Link' in park system.  
*Image: Courtesy of Laila Seewang*

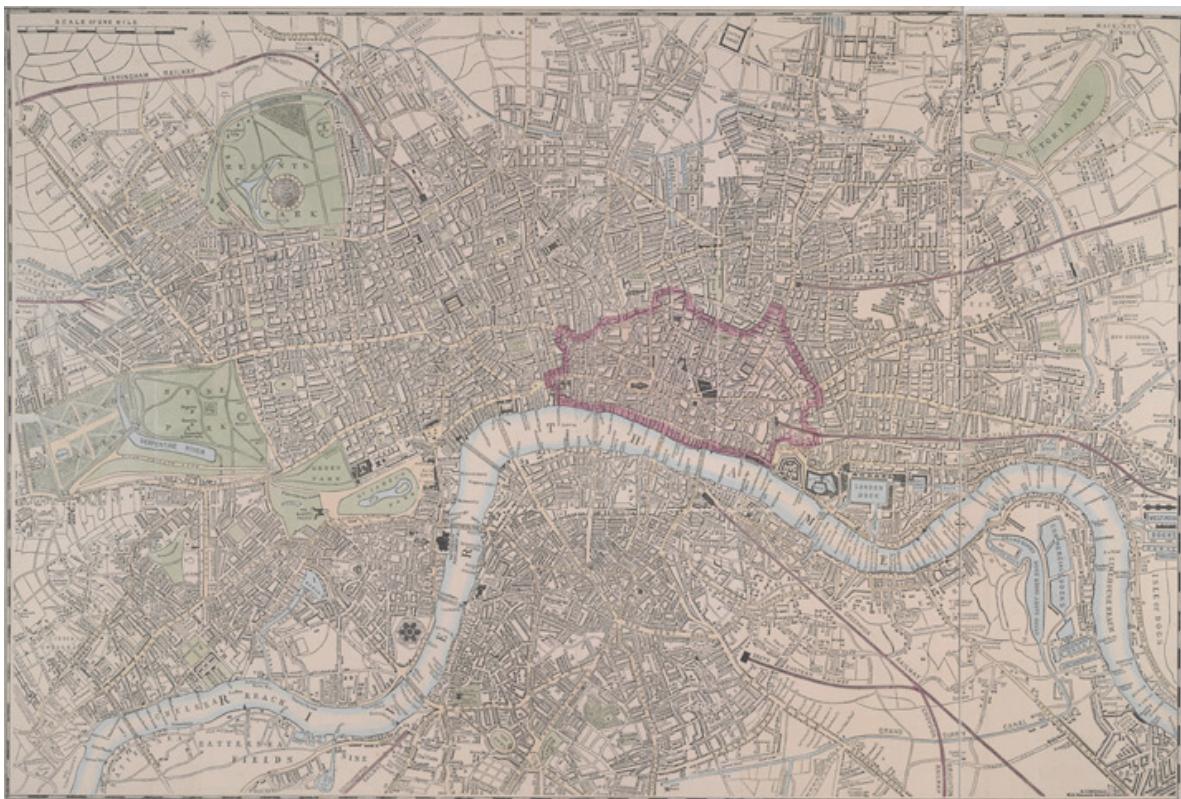


[fig38] Regents Park, London] Regent Street in context. *Image: the author, after Joshua Mendez and Laila Seewang*.



[fig39] Augustus Charles Pugin (1767-1831), *A View of Waterloo Place* (1817)

Where Regent Street and Pall Mall, and of the improvements opposite Carlton House. Waterloo Place was designed by Nash as a ‘square’ whose original purpose was to provide a terminus for Regent Street, and is adjacent to Carlton House, the extravagant home of the Prince Regent, Nash’s patron. *Image: Courtesy of British Library*



[fig40] Biggs's map of London (1842) The city boundary is marked in red, with open land, such as parks and gardens, in green, and the Thames, docks and canals in blue. Note that the same map appeared again for bicyclists in the 1880s, and just as this version identifies types of mobility infrastructure, the colors on that updated map show types of improved surfaces for cycling. *Image: Courtesy of British Library*

### *1812 – Telford's Bonar Bridge, Highlands*

Like Nash's Regent's Street and Regent's Canal – which we have characterized as 'missing link' projects – throughout history bridges have provided a key type of 'missing link' connectivity. In this sense a bridge is like a gateway, and many bridges have functioned as toll ways. A gateway can keep you out, or let you through — a wall divides one space and creates two new ones. Just so, innovative infrastructure has a legacy of both facilitating and precluding access to natural resources. Infrastructure is now conventionally deployed for the wholesale extraction of natural resources in many regions of the world to devastating effect, obliterating the ecological structure of these regions and often precluding inhabitation of them in the future.

Alternatively, by emphatically prioritizing the ecological continuity of river corridors whilst enabling access for those who inhabit the land, infrastructure can be created so as to provide for the city while further enabling life on the land. For instance, Thomas Telford (1757-1834) – the first president of the Institution of Civil Engineers and the first to build an internationally recognized 'longest span' bridge – championed 'a range of improvements to harbors and inland communications to stimulate the economy and stem (human) migration' in the Scottish Highlands.<sup>93</sup> Then, as now, record numbers of the rural population were leaving for the city — a trend he sought to counter with infrastructure.

With a sensitivity to the existing culture and landscape that affirms his being "a veritable child of the Scottish Enlightenment," his sustained work in that region included great works of civil engineering such as the Caledonian Canal, whose 24 locks involved establishing key areas with fill and mud 128 meters (420 feet) deep, as well as more modest works, such as Bonar Bridge, whose sympathetic design and craftsmanship prompted the poet Robert Southey to describe his first encounter with the bridge thusly: "At last I came in sight of something like a spider's web in the air...oh, it is the finest thing that ever was made by God or Man!"<sup>94</sup> Spanning 150 feet, and the prototype for many of Telford's subsequent cast iron arch bridge designs, historian Roland Paxton has recently written that Bonar Bridge 'combined elegance with economy and strength to an unparalleled degree.'<sup>95</sup> [fig41\_telford\_bonar\_bridge] Telford's stated objective was to provide access to the resources that enable individuals to take initiative and to improve their own conditions.

It is also interesting to note that this region of Scotland provides abundant evidence of prehistoric inhabitants, hosting many ancient hut circles and cairns (stacked stones) and Pictish symbol stones, as well as early Bronze Age artifacts such as the 'Migdale Hoard' – a collection of jewelry discovered by workmen blasting a granite knoll behind Bonar Bridge, on property belonging to

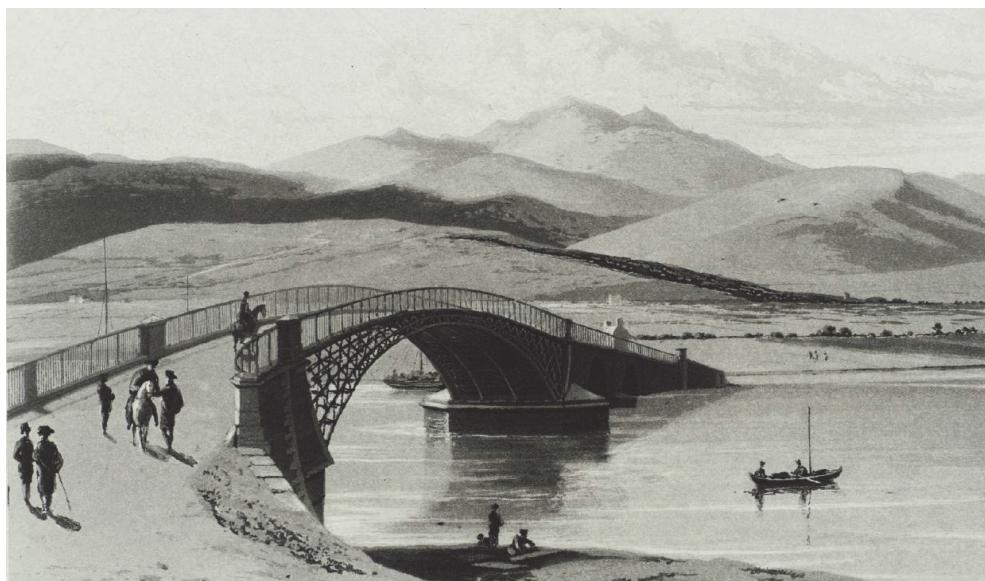
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<sup>93</sup> Kenneth Powell, ed., *The Great Builders*, 1 edition (London: Thames & Hudson, 2011), 68–69.

<sup>94</sup> Powell, 70.

<sup>95</sup> R Paxton, "Thomas Telford's Cast-Iron Bridges," *Proceedings of the Institution of Civil Engineers*, May 2007, 12–19.

Scottish industrialist and American philanthropist Andrew Carnegie in May of 1900.<sup>96</sup> Nevertheless, as industrial interests grew so did their reach into previously isolated regions. Numerous of Telford's piers, road improvements and major bridges were exploited and ultimately usurped by railroads, and whether intentionally or inadvertently these wonders of engineering facilitated irreparable damage to districts by others who lived elsewhere. His Bonar Bridge was long ago replaced with a standard industrial era bridge — one better suited to the high volumes of traffic and rates of speed conducive to global commerce – but the example provided by this remarkable design continues to exert an influence on bridge design to the present day, especially the ‘missing link’ pedestrian bridges of community-minded landscape designers. *[fig42\_west 8\_bridges]*



**[fig41\_Thomas Telford, Bonar Bridge - Highlands, Scotland (1811/12)]**

From William Daniell's *A Voyage 'round Great Britain* (1814-25) *Image: Courtesy of British Library*



**[fig42\_West 8, Amsterdam (1998)]** Pedestrian bridges at Borneo Sporenburg, *Image: West 8 b.v.*

<sup>96</sup> Joseph Anderson, “Notice of a Hoard of Bronze Implements, and Ornaments, and Buttons of Jet Found at Migdale, on the Estate of Skibo, Sutherland, Exhibited to the Society by Mr. Andrew Carnegie of Skibo,” *Proceedings of the Society of Antiquaries of Scotland*, 1901, 266–80.

### *1829 - Loudon's London*

John Claudius Loudon (1783-1843) was a Scottish botanist, garden designer, and prolific author. A younger contemporary of Thomas Telford (1757-1834), Loudon, like Repton and his contemporaries, began his career in farming and land management. Having studied biology, botany and agriculture at the University of Edinburgh, he described his early work on the layout of farms in South Scotland as *landscape planning*. Like Telford, Loudon was also a ‘child of the Scottish Enlightenment’ and the social and ecological ambitions of his work – both as author and designer – contributed to the popularization and democratization of gardening.<sup>97</sup>

Loudon left Edinburgh for London in 1803, and having established a thriving landscape gardening practice he began to write. His first published article addressed the management of London’s squares and their importance, a subject to which he would frequently return, and in his first book, *Observations on the Formation and Management of Useful and Ornamental Plantations, on the Theory and Practice of Landscape Gardening* (1804), Loudon – like Knight and Price before him – was particularly critical of Lancelot Brown, writing:

*...wherever his levelling hand has appeared, adieu to every natural beauty! See everything give way to one uniform system of smoothing, levelling and clumping of the most tiresome monotony, joined to the most disgusting formality.*<sup>98</sup>

As industrial printing methods advanced, lower reproduction costs allowed his ideas to be widely dispersed and ‘as the most distinguished gardening author of his age...rather than through his garden designs...Loudon gained historical significance.’<sup>99</sup> In 1805 he published *A Short Treatise on Several Improvements Recently Made in Hothouses*, and his first major popular success was found by his third book, *A Treatise on Forming, Improving and Managing Country Residences*, published in two volumes in 1806. That year he again turned his attention to agriculture, acquiring Wood Hall Farm in Oxfordshire, where he lived while managing nearby Great Tew Park. It was here that Loudon established one of the earliest agricultural colleges, which he ran until he left the estate in 1811.<sup>100</sup>

Loudon took his Grand Tour in 1813-14, and by the time he returned his fortune had been lost in speculative investments, prompting him to take renewed initiative in his design and writing efforts. Loudon again took up his interest in hothouses, and wanting to make them beautiful in their own right, in 1816 he developed a wrought-iron sash-bar and half-bar that could be bent in any

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<sup>97</sup> Louise Wickham, “John Claudius Loudon - Father of the English Garden” (Parks and Gardens UK, 2007), <http://www.parksandgardens.org/explore/topics/176-historical-profiles/477-john-claudius-loudon?showall=&limitstart=1>.

<sup>98</sup> J. C. Loudon, *Observations on the Formation and Management of Useful and Ornamental Plantations: On the Theory and Practice of Landscape Gardening; and on Gaining and Embanking Land from Rivers or the Sea.* (Edinburgh: Archibald Constable, 1804), 210.

<sup>99</sup> William Howard Adams, *Nature Perfected: Gardens Through History*: (New York: Abbeville Press, 1991), 187.

<sup>100</sup> Wickham, “John Claudius Loudon - Father of the English Garden.”

direction without losing its strength.<sup>101</sup> These innovations were published in his *Remarks on the Construction of Hothouses* (1817) and in *A Comparative View of the Common and Curvilinear Modes of Roofing Hothouses* (1818). These books, along with a self-published pamphlet he produced of experimental hothouses, were to have far reaching consequences: taken up by a youthful Joseph Paxton, they inspired his design of the Great Conservatory at Chatsworth in 1838, which was to find culminating expression in his Crystal Palace built in Hyde Park to house the Great Exhibition of 1851, to which we will return to shortly.

Loudon again found commercial popularity in his *An Encyclopaedia of Gardening* in 1822, and buoyed by its success he published *The Encyclopedia of Agriculture* in 1825. In 1826 he founded the *Gardener's Magazine*, the first periodical devoted solely to horticulture, and in 1828 he founded the *Magazine of Natural History*. Loudon's vision for the possibility of long term planning of London's green spaces was illustrated within his work, *Hints for Breathing Places for Metropolis* published in 1829. He envisioned city growth being carefully shaped and circulation influenced by the inclusion of green belts, a scope of work he characterized as 'landscape architecture'. [fig43\_loudon\_london greenbelts]

The term *landscape architecture* had only recently been coined by the Scottish agrarian and businessman Gilbert Laing Meason (1769 – 1832), and first published in his *Landscape Architecture of the Great Painters of Italy* (1828) – primarily addressing the site-responsive regional architecture of Northern Italy as seen in the landscape paintings of great Italian artists, of which he provides numerous verdant reproductions derived from the likes of Titian, Raphael, Domenichino, Albano and Caracci. In the book Meason explicitly relates his notion of *landscape architecture* to public interest, quoting Scottish surgeon and geologist Dr. John Macculloch (1773-1835), who in 1819 had written:

*The public at large has a claim over the architecture of a country. It is common property, inasmuch as it involves the national taste and character; and no man has a right to pass himself and his own barbarous inventions as a national taste, and to hand down to posterity his own ignorance and disgrace to be a satire and a libel on the knowledge and taste of his age.*<sup>102</sup>

The sentiment of the above quotation is reflected in the profession's central involvement with 'public good' and the public realm. But only 150 copies of Meason's book were initially printed: Loudon was among those few individuals familiar with the work, and it was his use of the term that led to its popularization. Having been taken with the term landscape architecture, he also praised it in the *Gardener's Magazine* - soon thereafter Loudon's American admirer, the horticulturalist and 'landscape

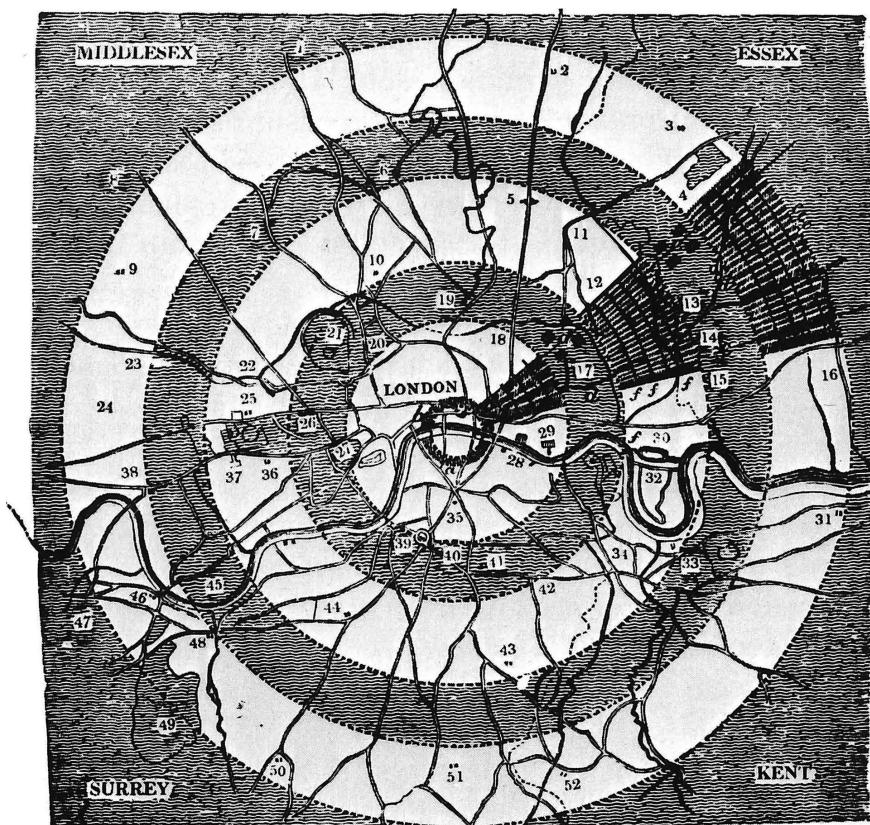
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<sup>101</sup> Wickham.

<sup>102</sup> John Macculloch, *A Description of the Western Islands of Scotland, Including the Isle of Man: Comprising an Account of Their Geological Structure; with Remarks on Their Agriculture, Scenery, and Antiquities*, 1st ed., vol. 1 (London: Archibald Constable, 1819), 359; as cited in Gilbert Laing Meason, *On the Landscape Architecture of the Great Painters of Italy* (C. Hullmandel, 1828).

gardener' (after Repton) Andrew Jackson Downing (1815-52), whom we will meet in the following next project, adopted the term and used it as an equivalent to 'rural architecture', a phrase common then. Downing's architectural counterpart and design collaborator – and notably the coauthor of a number of Downing's famous books and articles - was another important yet little known figure in this discourse: Alexander Jackson Davis (1803-92) – whose early park and estate designs, particularly his community design for Llewellyn Park, we will soon address. When Downing's admirer Frederick Law Olmsted eventually took up the term he gave it a disciplinary meaning, which we will also consider in due course.

In light of all this, it is not surprising that Loudon himself is largely credited with the development of the idea of public parks.<sup>103</sup> It is an affirmation of this that at the end of his life Loudon revisited the work of Repton, publishing *The Landscape Gardening and Landscape Architecture of the Late Humphry Repton, Esq.* (1840), in which he reflects with newfound appreciation on his predecessors work – presented in the original form – and supplemented with an 'historical and scientific introduction, a systematic analysis, a biographical notice, notes and a copious alphabetical index'.<sup>104</sup>



[fig43\_Loudon's London Greenbelts, 1829] Image: public domain

<sup>103</sup> Tom Turner, "John Claudius Loudon and the Inception of the Public Park," *Landscape Design*, November 1982, <https://doi.org/http://dx.doi.org/10.1080/01426398308706049>.

<sup>104</sup> Humphry Repton and John Claudius Loudon, *The Landscape Gardening and Landscape Architecture of the Late Humphrey Repton, Esq: Being His Entire Works on These Subjects* (London: Longman & Co., 1840).

*1847 – Paxton’s Birkenhead Park, Liverpool*

Birkenhead Park was designed by Joseph Paxton (1803-65) – an English gardener, architect and Member of Parliament famed for his design of the Crystal Palace, as we have noted earlier. Popularly known as ‘The People’s Park’, it opened on April 5, 1847, it is widely acknowledged to be the first publicly funded park in the world.<sup>105</sup> An improvement Commission – part of Birkenhead’s local government – had initially proposed the idea of a municipal park in 1841, for which a Private Act of Parliament allowed it to use public money to buy 226 acres of marshy grazing land on the western edge of Birkenhead on a waterfront that was directly accessible by ferries direct to Liverpool harbor.<sup>106</sup> The project set an important precedent for the reciprocal funding procedures of urban parks built in advance of city development, as plots of land on the edge of the proposed park were sold in order to finance the construction of the park, and the park provided the incentive for such profitable public investment. *[fig44\_paxton\_birkenhead park]*

The innovative project received local praise and generated international interest, and among early advocates of the park was the perceptive Andrew Jackson Downing (1815-1852) – writer and founder of American landscape architecture – who upon his arrival in Britain visited the project shortly after it opened, close as it was to the international port in Liverpool, and subsequently praised it in *The Horticulturalist and Journal of Rural Art and Rural Taste* in an editorial titled ‘The People’s Park at Birkenhead’, concluding:

*Certainly, in what I have noticed, it is a model...and may be held up as an example, not only to philanthropists and men of taste, but to speculators and men of business... The friendship of nature has been secured to them... one of the most interesting public places of enjoyment in all Europe - and all the more interesting, because it has been formed by the people themselves, and not made and presented to them by the sovereign.*<sup>107</sup>

Historically, the international port at Liverpool facilitated the industrialization of nearby Manchester 30 miles to the east (formerly by canal, then rail, and now via Highway M62), and the transportation corridor from Birmingham, 100 miles to the southeast (now Highway M6), lands precisely between the two cities. Birmingham itself is about midway along the circuit (the M6) that leads directly to London some 220 miles from Liverpool, constituting the western edge of Britain’s Peak District National Park, where the city is situated near the southwest corner of the park – with Manchester at the northwest corner, and Leeds and Nottingham at the northeast and southeast corners, respectively. As one of the

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<sup>105</sup> Ralph T. Brocklebank, *Birkenhead: An Illustrated History* (Derby: Breedon Publishing Co., 2003), 32.

<sup>106</sup> Robert A. M. Stern, David Fishman, and Jacob Tilove, *Paradise Planned: The Garden Suburb and the Modern City*, 1St Edition edition (New York: The Monacelli Press, 2013), 32.

<sup>107</sup> Andrew Jackson Downing, “The People’s Park at Birkenhead,” *The Horticulturalist and Journal of Rural Art and Rural Taste* 3 (June 1849): 160.

earliest regions in the world to be heavily industrialized, each of these cities linked around the park (and later incorporated into Cedric Price's *Potteries Thinkbelt* project, addressed in at the end of this section) made important early contributions to the international parks movement.

The communities of weavers in Rochdale, for example, were the founders of the modern cooperative movement – which grew from 28 founding members in 1844 to over 720 million members at its 150<sup>th</sup> anniversary in 1994.<sup>108</sup> The city is situated at the entrance to Summit Pass – an area well suited to the regional occupation of keeping sheep and producing wool and woven textiles – and is linked by the Rochdale Canal to Manchester on the north end of the park.<sup>109</sup> Straddling the woolen industry of Yorkshire and the cotton industry of Lancashire, the city became a commercial center of increasing importance. From the construction of the first canal segment in 1888, the economic pressures of the city's growth led to social conflicts that found cooperative responses. Historian David J. Thompson writes that the birth of the cooperative movement in 1844 is an important precedent for three reasons:

*Three economic models, which have dominated the world economy for the past 150 years, took shape that year. First...the Joint Stock Act was passed by British Parliament...[and] Parliament passed the Bank Charter Act...therefore, at both a micro and a macro level, the structure of modern capitalism became an economic reality. Second...Marx published The German Ideology, which developed the philosophical underpinnings of Communist thinking...[and] Frederich Engels, a German-born businessman and Chartist supporter then based in Manchester, wrote the classic Conditions of the Working Class in England. [They] then formed a lifelong association beginning with the publication of the Communist Manifesto in 1848...Of [its] ten demands...seven are now law in most industrialized nations. Third, twenty-eight working people founded the Rochdale Equitable Pioneers Society...From the mutual efforts of those humble workers grew an idea that...represents the birth of the modern cooperative movement.*<sup>110</sup>

There is much to be learned from the precedents of Rochdale's long-term commitment to community wide cooperative actions and their eventual successes, of which perhaps the most vivid is the forthright action of the Kinder Scout Mass Trespass of 1932 – a deliberate act of trespass intended to highlight the fact that the public was being denied access to areas of open country. On April 24, 1922 a coalition of well-organized community groups, led by the Communist-inspired *British Workers' Sports Federation*, staged a mass trespass – leading to a confrontation with the wardens of the 9<sup>th</sup> Duke of Devonshire, in which many protesters were arrested and many more physically abused. Regional

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<sup>108</sup> David J. Thompson, *Weavers of Dreams: The Origins of the Modern Co-Operative Movement* (Davis, CA: Center for Cooperatives, University of California, 1994), 2.

<sup>109</sup> Thompson, 2.

<sup>110</sup> Thompson, 1–2.

historian David Hay maintains an impressive public service, an online Kinder Trespass Archive where, among other evidence of scholarly rigor, he documents the public apology made by Andrew the 11<sup>th</sup> Duke of Devonshire for his grandfather's 'great wrong' – on the occasion of the 70<sup>th</sup> anniversary of the Kinder trespass:

*I am aware that I represent the villain of the piece this afternoon. But over the last 70 years times have changed and it gives me enormous pleasure to welcome walkers to my estate today. The trespass was a great shaming event on my family and the sentences handed down were appalling. But out of great evil can come great good. The trespass was the first event in the whole movement of access to the countryside and the creation of our national parks.<sup>111</sup>*

Press coverage of the Mass Trespass marked the beginning of a media campaign by that, among other outcomes, eventually led to the creation of Peak District National Park, the passage of Britain's National Parks legislation of 1949, and the Countryside and Rights of Way act of 2000.<sup>112</sup> Journalism about the sanctioned violence done to public protesters by official authorities contributed to the eventual successes these cooperative methods – a sequence of events paralleled by subsequent social movements, notably the American civil rights movement some thirty years later.

This connection is further reinforced by the fact that Downing's journalism in 1848 had popularized Birkenhead Park in America, where it reached a young Frederick Law Olmsted, then working as a travel correspondent for the recently established New York Times. When Olmsted visited Britain in 1850, he arrived at the international port in Liverpool and Birkenhead Park was among his first impressions. In his reports to the Times, later collected and published in his book *Walks and Talks of an American Farmer in England*, he echoed Downing's characterization of Birkenhead as 'a model town...all in accordance with the advanced science, taste, and enterprising spirit that are supposed to distinguish the nineteenth century', and reflected on the social and aesthetic values evidenced by *The People's Park*:

*...five minutes of admiration, and a few more spent studying the manner in which art had been employed to obtain from nature so much beauty, and I was ready to admit that in democratic America there was nothing to be thought of as comparable with this People's Garden...I cannot undertake to describe the effect of so much taste and skill as had evidently been employed; I will only tell you, that we passed by winding paths, over acres and acres, with a constant varying surface, where on all sides were growing every variety of shrubs and flowers, with more than natural grace...<sup>113</sup>*

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<sup>111</sup> David Hey, "Kinder Trespass - Consequences," 2014, <http://kindertrespass.com/index.asp?ID=138>.

<sup>112</sup> David Hey, "Kinder Trespass - Conflict and Controversy," *Kinder Trespass Archives* (blog), 2014, <http://kindertrespass.com/index.asp?ID=196>.

<sup>113</sup> Frederick Law Olmsted, *Walks and Talks of an American Farmer in England*, vol. 1 (New-York: G.P. Putnam & Company, 1852), 79, <http://www.biodiversitylibrary.org/item/58759>.

Joseph Paxton's Birkenhead Park is thus widely acknowledged to have served as Olmsted's model for Central Park eight years later, both conceptually and practically. Just as *The People's Park* set the template for Olmsted's public urban parks, Paxton's Buxton Park of 1852 provided Olmsted with a model for community development. *[fig45\_paxton\_buxton park]* Paxton had designed the park for the sixth Duke of Devonshire, and was implemented in piecemeal fashion from the 1830s.<sup>114</sup> Built on a 100 acre site, 40 of which were dedicated to continuous parks and parkways, Buxton Park features serpentine drives bridging pedestrian underpasses, forty-seven villas, a pair of semidetached houses and three terraced clusters. Unlike Birkenhead Park, however, Buxton Park was not directly accessible by water, and the majority of lots at Buxton were not taken up until a decade after Paxton's death in the 1870s. Emphasizing the role of transportation in this delayed commercial success, Buxton conservation consultant Mel Morris writes:

*It is likely that the original scheme was simply not economically feasible in the 1850s...particularly bearing in mind that it would be a further decade before the railway reached Buxton, bringing the town within a relatively comfortable and fast journey to Manchester and other large cities.*<sup>115</sup>

Nevertheless, this logistical point was also not lost on Olmsted and Vaux when they created the Riverside community near Chicago in 1869, a project that bears more than a formal similarity to Paxton's early park neighborhood, as we will see in the following section. While Olmsted's lessons from Paxton's *People's Park* were first evident in New York, the lessons of Buxton Park were applied in Chicago.

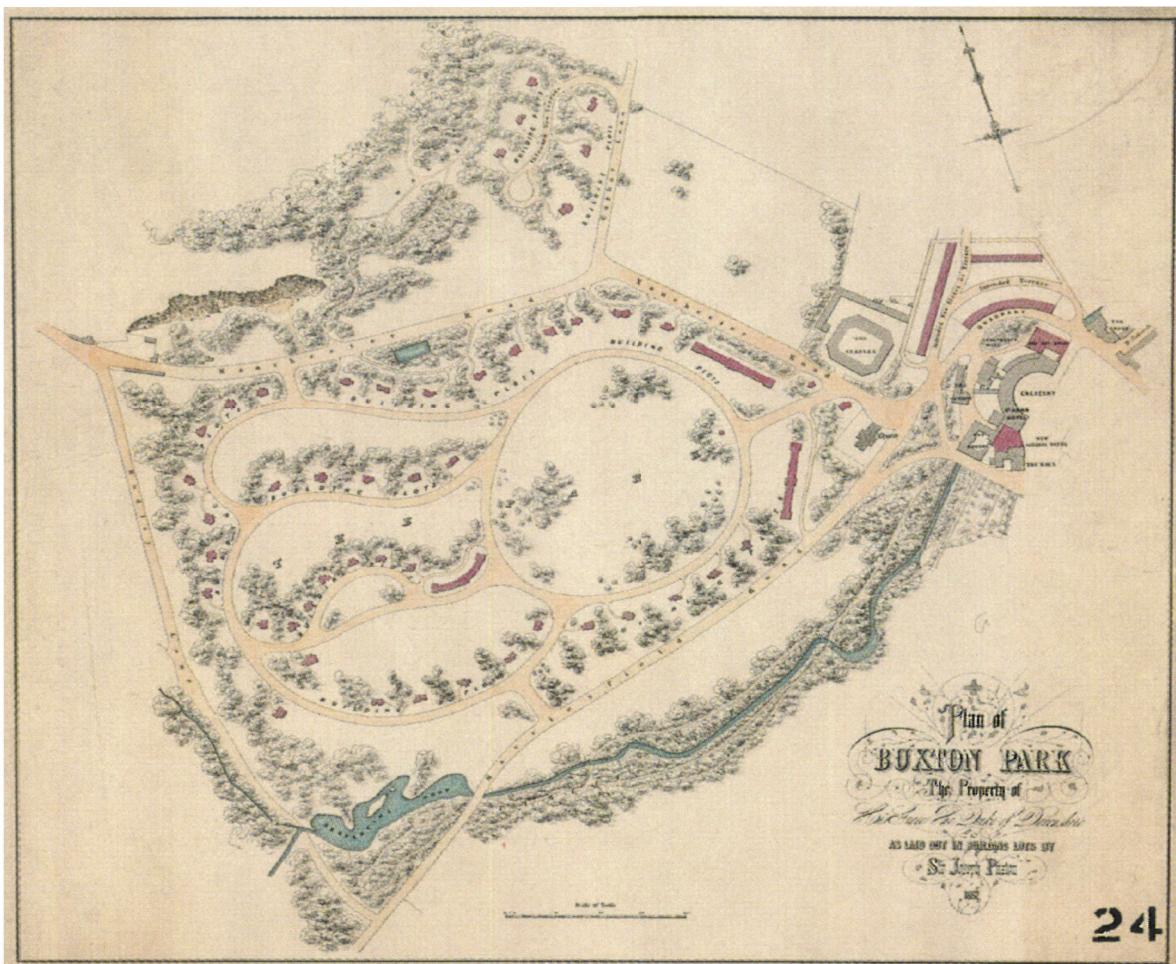
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<sup>114</sup> "Pavilion Gardens, Buxton, High Peak - 1000675," Historic England, accessed September 3, 2017, <https://historicengland.org.uk/listing/the-list/list-entry/1000675>.

<sup>115</sup> Mel Morris, "Buxton Conservation Areas," Character Appraisal (Buxton: High Peak Borough Council, n.d.), 91; as cited in Stern, Fishman, and Tilove, *Paradise Planned*, 33.



[fig44\_Birkenhead Park, Liverpool (1844)] BRL 33.10



[fig45\_Joseph Paxton, Buxton Park (1852)] Paxton's work was recorded in this plan, drawn by Dr. William Robertson in 1855. BUX 34.10

### *1850 – Chicago’s Park System*

As in many cities Chicago’s parks were the result of private initiatives that, having gained popular support, became public.<sup>116</sup> Likewise, the initial vision for Chicago’s park system came not from city officials, but from a local businessperson. On April 23, 1849 the Chicago Tribune published a letter written by a local real estate developer John S. Wright, who wrote:

*I foresee a time, not very distant, when Chicago will need for its fast increasing population a park or parks in each division. Of these parks I have a vision. They are all improved and connected with a wide avenue, extended to and along the lake shore on the north and south, and so surround the city with a magnificent chain of superb parks and parkways that have not their equals in the world.*<sup>117</sup>

Wright’s proposal captured the public imagination, and was soon regarded as ‘prophetic’ by city historians.<sup>118</sup> This vision established the basis for an intergenerational park systems initiative, taken up and developed by subsequent generations through a process that involved numerous exchanges between private and public civic interests. A brief review of the history of Chicago’s first public park, Dearborn Park, provides a concise illustration of this kind of back and forth process.

In March of 1803 the U.S. Secretary of War, Henry Dearborn, had commissioned a survey of the situation at Chicago with the intention to build a military fort there. The survey was completed five months later, and by the summer of 1804 Fort Dearborn had been completed – situated atop an ancient Native American mound at a strategic bend in the Chicago River.<sup>119</sup> In 1839 The Federal Government sold most of the land, gifting the city with just over an acre of land on the condition that it be ‘improved and fenced in as a park in perpetuity’: some improvements were made, and the park was initially used for public fairs – but the city administration was preoccupied with other things and the condition of the park steadily deteriorated, until after the Great Chicago fire of 1871 it became the site of the Chicago Public Library following the *Illinois Library Act of 1872*.<sup>120</sup> The *Library Act* itself was the public result of a private civic initiative - with books being donated by such literary luminaries as Queen Victoria, Alfred Lord Tennyson, John Stuart Mill and John Ruskin - having been proposed by A.H. Burgess of London who had proposed an ‘English Book Donation’ to the editor of the Chicago Tribune, in a letter published on December 7, 1871 which read:

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<sup>116</sup> Glen E. Holt, “Private Plans for Public Spaces: The Origins of Chicago’s Park System, 1850-1875,” *Chicago History*, no. 8 (Fall 1979): 173–84.

<sup>117</sup> John S. Wright, “Letter to the Editor,” *Chicago Tribune*, April 23, 1849, Chicago Tribune.

<sup>118</sup> Francis A. Eastman, “The Public Parks of Chicago: Their Origin, Former Control and Present Government,” in *The Chicago City Manual* (Chicago: Chicago Bureau of Statistics and Municipal Library, 1914), 7, <http://archive.org/details/chicagocitymanua191415chic>.

<sup>119</sup> Milo Milton Quaife, *Checagou: From Indian Wigwam to Modern City, 1673-1835* (Chicago: University of Chicago Press, 1933), 65–75.

<sup>120</sup> Eastman, “The Public Parks of Chicago: Their Origin, Former Control and Present Government,” 8.

*I propose that England should present a Free Library to Chicago, to remain there as a mark of sympathy now, and a keepsake and a token of true brotherly kindness forever...<sup>121</sup>*

Thus the city gained a library, but lost a park. Here the story hinges on a recurring theme common to many of the riverfront parks we will encounter – railroad interests. In 1885 Dearborn Station was opened, serving mostly commuter railroads and it wasn't until 1977 that a private group of civic leaders convinced businessman George Halas to bestow 51 acres of railroad yards for redevelopment as a new Dearborn Park – the subsequent creation of which was handled in tandem with real estate development, and was heralded as a model of urban renewal.<sup>122</sup> Throughout the late 19<sup>th</sup> and early 20<sup>th</sup> century such productive private-public civic exchanges were played out across the city, resulting in a variety of parks.

Following John S. Wright's initial park system proposal of 1849, the idea of a comprehensive park system was soon taken up by a new group of advocates: scientists and doctors. An important precedent for this interest in parks for public health was set in 1854 when English physician John Snow (1813-58) had identified London's unsanitary water as the cause of the city's cholera outbreak, which ravaged the city throughout the period of the *Great Exposition of 1851*. Skeptical of the 'miasma' theory then prevalent, by which the disease was thought to be airborne, Snow first published his waterborne theory in 1849 in booklet titled *On the Mode of Communication of Cholera*.<sup>123</sup> This first edition was 31 pages, and had no illustrations. In 1855 Snow issued a second edition, now expanded to 162 pages and replete with a variety of tables and figures – among which was the map for which he soon became famous. *[fig46\_snow\_cholera\_map]* Having conducted inconclusive chemical and microscopic examination of water from various sources, Snow had undertaken to better understand the source of London's cholera outbreak by making a map of the cholera cases he was treating which he expanded by talking with – 'surveying' – local residents, and by mapping the patterns of the illness came to identify the source of the outbreak as being the public water pump on Broad Street and persuaded the local authorities to disable the pump by removing its handle.

At a meeting of the Chicago Academy of Sciences on November 10, 1868 – following a discussion of Dr. Snow's report, to which we will return briefly –Academy members passed the following resolution: "RESOLVED, that Dr. John H. Rauch be requested, at his earliest convenience, to prepare a paper on Public Parks, to be read before the Academy."<sup>124</sup> Dr. Rauch was the Sanitary Superintendent for the city's Board of Health, as well as the city's Registrar of Vital Statistics, and his report for the

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<sup>121</sup> "CPL History," Chicago Public Library, accessed October 9, 2017, <https://www.chipublib.org/cpl-history/>.

<sup>122</sup> Lois Wille, *At Home in the Loop: How Clout and Community Built Chicago's Dearborn Park* (SIU Press, 1997), 58–59.

<sup>123</sup> Dr. John Snow, *On the Mode of Communication of Cholera*, 1st ed. (London: Wilson and Ogilvy, 1849).

<sup>124</sup> Dr. John H. Rauch, *PUBLIC PARKS: Their Effects Upon The Moral, Physical And Sanitary Condition Of The Inhabitants Of Large Cities* (Chicago: S.C. Griggs & Co., 1869), 3.

Academy of Sciences, titled *PUBLIC PARKS: Their Effects Upon The Moral. Physical And Sanitary Condition Of The Inhabitants Of Large Cities*, opens with a review of the origins of public parks. Rauch cites Pausanius as having identified the Pelasgicum in Athens as the first public park, and details its creation *via negativa*:

...vacant pieces of ground, serving as so many reservoirs of pure air, for counteracting atmospheric influences incident to cities, and the effect of epidemics and contagions...Pelasgicum was the name given to the most ancient part of the fortifications of the Acropolis at Athens...having been constructed by the Pelasgii (or 'wall builders' as they were called)...the ground below the wall, at the foot of the rock of Acropolis...had been allotted to [them]...and owing to the conspiracy formed by them against the Athenians, they were banished...such was the abhorrence with which this conspiracy was regarded, that an execration was pronounced on any who should build houses on this ground. In consequence of this...it was not built upon; and thus being necessarily left vacant, the beneficial effects of this open space in the course of time became so apparent that the Pythian oracle uttered, 'Best is Pelasgicum empty;' and what was supposed, at the time, to have been a great curse, proved ultimately to be a blessing in disguise...Parks have been aptly termed 'the lungs of the city.' They are emphatically the people's gardens...<sup>125</sup>

Rauch then cites Goethe's friend, geographer and naturalist Alexander von Humboldt, who had written in his final book *Cosmos: A Sketch of the Universe* (first published in 1845, but then only recently translated into English in 1864) that "the Greeks regarded the vegetable world as standing in a manifold and mythical relation to heroes and to the gods, who were supposed to avenge every injury inflicted on the trees and plants...Imagination animated vegetable forms with life...", and adds:

Their ideas of landscape gardening...derived from the Persians...encouraged art more than nature. Athens had its public park, called ACADEMIA...laid out by Cimon, who formed pleasant walks, introduced water and planted groves. At the entrance an altar dedicated to Love was placed, and scattered through the grounds were statues and monuments of the most worthy citizens. One portion of the park was devoted to the exercise of athletic games, and another to contemplative recreation.<sup>126</sup>

Turning his attention to North American precedents, Rauch refers to Humboldt's report of two trees near Chepultepec, Mexico 'which he supposed to be the remnants of an ancient garden...of Montezuma's which measured thirty-eight feet in circumference', and to historian William H. Prescott's *History of the Conquest of Mexico* (1843) where he writes, "There is no doubt...that at the time of the conquest of Montezuma's Empire there were no menageries or botanical gardens in any part of

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<sup>125</sup> Rauch, 6.

<sup>126</sup> Rauch, 9.

Europe, which could be compared with these of Huaztepec, Chepultepec, Itzapalapan and Tezuco.”<sup>127</sup> Rauch writes critically of early France, Germany, and England where he says ‘landscape gardening received but little attention for many years, and their imitations of Roman and Italian styles were poor, leaving but little of the artistic,’ and praises Holland:

*The Dutch school at one time was foremost. It was a revival of the ancient or geometric style, in which statues, vases, and busts were interspersed with fountains, and...various forms of the vegetable kingdom.*<sup>128</sup>

Addressing the origins of the term ‘park’ Rauch begins with the commonly accepted derivation from the French *parque* and *parc*, ‘formerly a large quantity of ground enclosed and privileged for the keeping of beasts of the chase...by the King’s grant or prescription’ but then turns to an insightful line of thought, unique among the sources I have found in my research and particularly relevant its theme:

*In some parts of Britain the word park is still used in its original sense – to denote a field or enclosure; but more generally applied to the enclosed grounds around a mansion, designated in Scotland by another term of French origin – policy. The park, in this sense, not only includes the lawn, but all that is devoted to the growth of timber, pasturage for deer, sheep, etc., in connection with the mansion, and to pleasure walks or drives, or to purposes of enjoyment, in contradistinction to those of economical use.*<sup>129</sup>

This powerful correlation of *park* and *policy* not only emphasizes, once again, the important innovations of the Scottish Enlightenment – a point repeatedly noted throughout this research – but also the distinctly *ecological* nature of those innovations. As Rauch writes:

*The word park has different significations, but that in which we are now interested has grown out of its application, centuries ago, simply to hunting grounds; the choicest lands for such purposes being those in which the beasts of the chase thrived best, and consequently were most abundant. Sites were chosen, in which it was easy for them to turn from rich herbage to clear water, from warm sunlight to cool shade; that is to say, by preference, ranges of well-watered dale-land, broken by open groves, and dotted with spreading trees, undulating in surface...*<sup>130</sup>

With this line of thought Rauch puts his finger on the relationship between *ecological vitality* and *policy*, as it relates to land management and, increasingly, to public access.

*Hence, after a time, parks began to be regarded, and to be maintained with reference, more than anything else, to the convenient accommodations of numbers of people... As the power of the people has increased the Royal Parks have been more adapted to their wants. In the present century, not only have the old parks*

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<sup>127</sup> Rauch, 10.

<sup>128</sup> Rauch, 10.

<sup>129</sup> Rauch, 12.

<sup>130</sup> Rauch, 12.

*been thus maintained and improved, but many new parks have been formed exclusively for the purposes of recreation, enjoyment, and health...<sup>131</sup>*

Of course it is because of the Academy of Science's urgent interest in Chicago's public health that Rauch had been asked to prepare his report. In addition to his official capacities as a public health administrator generally, Rauch was regarded as an expert on cholera and had closely followed John Snow's research.

As in London, Chicago had been contending with deadly cholera outbreaks: in 1849, the year of Snow's first report, about 700 Chicagoans, or 3 percent of the population, had died from the disease; another outbreak in 1854 killed nearly 1,500 people, about 6 percent of the population.<sup>132</sup> Further outbreaks occurred in 1866 and 1867, prompting a state of emergency, and while Rauch was preparing his report in 1868-69 work was being concluded on the first attempt municipal authorities made to address the crisis by reversing the flow of the Chicago River, an accomplished fact in 1871.<sup>133</sup> But the river had not stayed reversed, and this first attempt was subsequently followed up by much grander undertaking – a 28 mile canal that took over 8,500 laborers eight years to complete, and was opened in 1900.<sup>134</sup> In creating *The Sanitary and Ship Canal* new earthmoving methods and machines were devised, and these proved instrumental to the construction of the 48 mile *Panama Canal* – initiated by France in 1881, taken over by the United States in 1904, and opened for use in 1914.<sup>135</sup> However Chicago's canal understandably drew the ire of neighboring cities along the Des Plaines, Illinois and Mississippi Rivers, and the threat of a court injunction by authorities in St. Louis – who balked at the idea of drinking Chicago's wastewater – prompted the canal's trustees to arrange for a ‘surreptitious opening of the canal.<sup>136</sup>

Dr. Rauch's 1869 report had effectively anticipated many of these issues, including many of the concerns engendered by such monumental efforts to control nature and points out the nonlinearity of cause and effect. In his report, Rauch refers to his earlier cholera research, writing of a paper he'd authored in 1850:

*While preparing [this] article on cholera, as it appeared at Burlington, Iowa, in 1850, I was forcibly struck with what I could not but regard as the preventative influence of trees. In the houses on the west side*

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<sup>131</sup> Rauch, 13.

<sup>132</sup> Chicago Historical Society, “1849–1855, 1866–1867: Early Cholera Epidemics,” Chicago Public Library, March 7, 2007, <https://web.archive.org/web/20070307091435/http://www.chipublib.org/004chicago/timeline/riverflow.html>.

<sup>133</sup> Stevenson Swanson, “Reversing the River,” *Chicago Tribune*, February 27, 2017, <http://www.chicagotribune.com/news/nationworld/politics/chi-chicagodays-reversingriver-story-story.html>.

<sup>134</sup> Chicago Historical Society, “Chicago.”

<sup>135</sup> Swanson, “Reversing the River.”

<sup>136</sup> Swanson.

*of Main Street [devoid of trees] more deaths took place...in proportion to the number of inmates...than in the ones in front of which were trees...<sup>137</sup>*

This observation prompted Rauch to dedicate seven pages of his report on public parks to a consideration of ‘how far trees modify climate.’<sup>138</sup>

The second chapter of his report addresses these broader issues head on, acknowledging their nonlinearity with a title that rings with increasing relevance today: ‘How Far Man Can Modify Climate’. Rauch opens the chapter with an extended quote from George Perkins Marsh’s prescient book *Man and Nature: Or, Physical Geography as Modified by Human Action* of 1865, where Marsh had written:

*The influence of man in changing the climate and the physical condition of a country needs no argument to substantiate...public attention has been...awakened to the necessity of restoring the disturbed harmonies of nature, where well-balanced influences are so propitious to all her organic offspring, of repaying to our great mother the debt which the prodigality and thriftlessness of former generations have imposed upon their successors—thus fulfilling the command of religion and of practical wisdom, to use this world as not abusing it...I am satisfied that we can become the architects of our own abiding place, as it is well known how the mode of our physical, moral, and intellectual being is affected by the character of the home...we have fashioned for our material habitation.<sup>139</sup>*

Rauch was truly far-seeing to have framed his argument with this citation, as Marsh’s book, and his public statements on the subject – as early as 1847, in a speech that warned of global warming and the mismanagement of natural resources<sup>140</sup> – were soon nearly forgotten for over a century, but have since been recognized as among the earliest contributions to contemporary climate change science.<sup>141</sup> Marsh, a polymath scholar and diplomat, is now credited with being the first person to publicly raise the issue of manmade climate, and in that early speech - an address before the Agricultural Society of Vermont, now popularly acknowledged as having sparked the early environmental conservation movement<sup>142</sup> - Marsh had stated:

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<sup>137</sup> Rauch, PUBLIC PARKS: *Their Effects Upon The Moral. Physical And Sanitary Condition Of The Inhabitants Of Large Cities*, 43–44.

<sup>138</sup> Rauch, 44.

<sup>139</sup> George Perkins Marsh, *Man and Nature: Or, Physical Geography as Modified by Human Action*, 1st ed. (New York: C. Scribner, 1865), 7–9; as cited in Rauch, PUBLIC PARKS: *Their Effects Upon The Moral. Physical And Sanitary Condition Of The Inhabitants Of Large Cities*, 32.

<sup>140</sup> Leo Hickman, “The 1847 Lecture That Predicted Human-Induced Climate Change,” *The Guardian*, June 20, 2011, sec. Environment, <http://www.theguardian.com/environment/blog/2011/jun/20/george-perkins-marsh-climate-speech>.

<sup>141</sup> See for example: Nicholas A. Fisichelli, Gregor W. Schuurman, and Edmund Sharron, “Climate Change: Responding to the Crisis Portended by George Perkins Marsh,” *The George Wright Forum* 32, no. 3 (2015): 276–89.

<sup>142</sup> Garrison Keillor, “Sep. 30, 2015: On This Day: George Perkins Marsh Delivers an Address on Manmade Climate Change,” The Writer’s Almanac with Garrison Keillor, accessed October 11, 2017,

*Man cannot at his pleasure command the rain and the sunshine, the wind and frost and snow, yet it is certain that climate itself has in many instances been gradually changed and ameliorated or deteriorated by human action. The draining of swamps and the clearing of forests perceptibly effect the evaporation from the earth... The same causes modify the electrical condition of the atmosphere and the power of the surface to reflect, absorb and radiate the rays of the sun, and consequently influence the distribution of light and heat, and the force and direction of the winds. Within narrow limits too, domestic fires and artificial structures create and diffuse increased warmth, to an extent that may effect vegetation.<sup>143</sup>*

Marsh was clearly describing the principles of concepts now familiar to us as ‘urban heat island effect’ and the ‘greenhouse effect,’ and public response to his speech – both credulous and skeptical – encouraged him pursue his tentative subject, and to publish his book nearly twenty years later. At a time when most people subscribed to the idea of ‘manifest destiny’ and generally viewed human impacts on the earth as beneficial, Marsh proposed an antithetical idea<sup>144</sup> – a strongly worded statement that appeared in a revised introduction to the second edition published four years later:

*...man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discords. The proportions and accommodations which insured the stability of existing arrangements are overthrown. Indigenous vegetable and animal species are extirpated, and supplanted by others of foreign origin, spontaneous production is forbidden or restricted, and the face of the earth is either laid bare or covered with a new and reluctant growth of vegetable forms, and with alien tribes of animal life.<sup>145</sup>*

Being that this statement appeared in 1869, the same year as Rauch’s report – and that this report was evidently submitted in November of the previous year - it is unclear whether Rauch was familiar with this statement. Nevertheless Rauch clearly grasped the gist of Marsh’s argument, and writes:

*Withdraw man, and you remove the disturber of all laws... it becomes our duty to restore, as far as possible, this harmony, which is destroyed by the accumulation of such a mass of human beings, as are now congregated in and around this city. The collection of many people in a small space, no matter for what purpose, is unnatural and artificial. It is therefore necessary, in order to prevent the ill effects of such accumulations, to resort to artificial means to equalize the disturbing agencies. Will we then intelligently use what knowledge we have, and avert the result...<sup>146</sup>*

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<https://writersalmanac.org/note/sep-30-2015-on-this-day-george-perkins-marsh-delivers-an-address-on-manmade-climate-change/>.

<sup>143</sup> George Perkins Marsh, “Address to the Agricultural Society of Rutland County” (University of Vermont, September 30, 1847), 7, <http://cdi.uvm.edu/collections/item/pubagsocaddr>.

<sup>144</sup> David Lowenthal, *George Perkins Marsh, Prophet of Conservation* (Seattle: Univ. of Washington, 2000), 228.

<sup>145</sup> George Perkins Marsh, *Man and Nature: Or, Physical Geography as Modified by Human Action*, 2nd ed. (New York: C. Scribner & co., 1869), 36.

<sup>146</sup> Rauch, PUBLIC PARKS: Their Effects Upon The Moral. Physical And Sanitary Condition Of The Inhabitants Of Large Cities, 32.

There is no question that the reversal of the river was well-intended, and in even effective in terms of addressing cholera, but the detrimental nonlinear effects of this action – including the havoc wreaked by invasive species such as Asian carp and zebra mussels on both infrastructure and biodiversity, as anticipated by Marsh – lend urgency to the current initiative to restore the natural direction of the river's flow.<sup>147</sup>

Nevertheless, Rauch's report on the beneficial moral and sanitary effects of public parks served a timely purpose, and in February 1869, shortly after it had been received by the Academy of Sciences, the State of Illinois passed legislation establishing the South, West and Lincolns Park Commissions whose purpose was to create a system of parks and boulevards for Chicago.<sup>148</sup> The South Park Board enlisted the services of Olmsted and Vaux, who had come to Chicago in 1868 to design the Riverside neighborhood – a scheme that embodies, at a community scale, the park systems idea they had first proposed for New York nearly ten years earlier. *[fig47\_olmsted\_riverside]* Dr. Rauch soon wrote to Olmsted and Vaux that he was ambitious for them to design Chicago's entire park system, and they duly prepared a comprehensive park system proposal for all three districts – but the Great Fire of 1871 destroyed the downtown offices of the South Park Commission, including this first park system scheme.<sup>149</sup> However compelling it is to imagine that first comprehensive park system vision, all that is now known of it is the fragment they redrew for the South Park Commission later that year. *[fig48\_olmsted\_chicago\_park\_system]* One of the central factors in the form of this Chicago plan is water management, and the figure of the plan illustrates the strong central axis of the 'Midway Plaisance' as a hinge between two large urban parks providing the infrastructure to drain those areas of the park that were formerly wetlands.

In 1871 the West Park Board had also retained the services of a 'first-rate landscape architect', William LeBaron Jenney: although he is now generally remembered as 'the father of the American skyscraper – the Home Insurance Building built in 1884-85, between 1871 and 1874 he designed the basic scheme for the West Park district, and took up the initiative to propose a boulevard system connecting it with the Lincoln and South Park districts.<sup>150</sup> Transparent financing of the park system proved problematic in Chicago – which had already earned a reputation as a home to gangsters – and various forms of corruption affected, and in some cases impeded, the creation of the city's park systems.<sup>151</sup> The reputation of the West Park Board particularly suffered from the taint of bid rigging when it was exposed in a series of articles in the Chicago Tribune.<sup>152</sup>

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<sup>147</sup> Claire Loe, "Reversing the Chicago River, Again," *Helix Magazine*, February 23, 2015, <https://helix.northwestern.edu/blog/2015/02/reversing-chicago-river-again>.

<sup>148</sup> Holt, "Private Plans for Public Spaces: The Origins of Chicago's Park System, 1850-1875," 178.

<sup>149</sup> Holt, 181.

<sup>150</sup> "West Park System" (*Cultural Landscape Foundation*, 2016), <https://tclf.org/landscapes/west-park-system>.

<sup>151</sup> Holt, "Private Plans for Public Spaces: The Origins of Chicago's Park System, 1850-1875," 181.

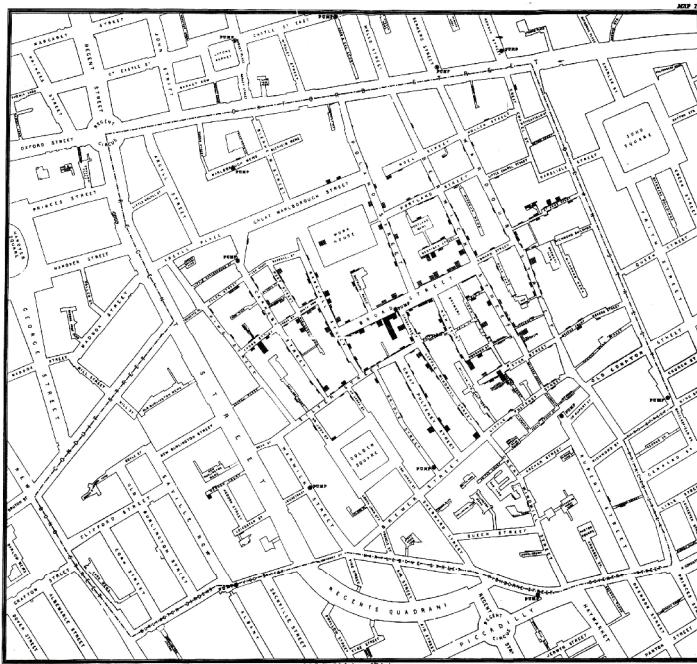
<sup>152</sup> See for example: "West Park Board Bid Rigging," *Chicago Tribune*, April 17, 1872.

By 1872 the South Park Board had dismissed Olmsted and Vaux, having balked at the cost of their design - in September of that year they retained another design team, and ordered them to scale back the plans for the South Park district. But even this reduced scheme had only been partially implemented when Olmsted and Vaux again returned to the city for the Great Columbian Exposition of 1893 – the site for which they chose the lakefront portion of their plan of 1871, connecting it with the then-existing westernmost fragment using their mile-long, 200 meter-wide grand boulevard of that earlier plan. They renamed this linear park ‘Midway Plaisance’, and it proved more popular than the fair itself – locals took to simply calling it ‘the midway’ - and it was here the Frank Lloyd Wright later built his Midway Gardens in 1913-14.

Likewise, William LeBaron Jenny’s proposals for the West Park district were only partially built, and by 1878 he had been dismissed from the project. But others carried on with his work, and the plan published by the West Park Board in 1880 – titled *System of Parks and Boulevards of the City of Chicago* – is a scheme that is generally credited to Jenny: it appears to be the first published drawing illustrating all three of Chicago’s park districts as a unified comprehensive park system.<sup>153</sup> While this is the earliest plan that still exists of the complete system, as mentioned earlier we know that Olmsted and Vaux had prepared one that was lost in the Great Chicago Fire of 1871. This missing drawing is one of the great mysteries I’ve discovered in this research, and I intend to pursue the matter further in the Olmsted archives. *[fig49\_chicago park system]* But the point made by the broader arc of these findings is that the system is a result of private initiatives made public, and individual initiatives made cooperative – so it interesting to note that in addition to an index of park areas, this plan lists 11 of 12 park system segments as ‘under control common council’, and one as ‘private’. From 1892 Chicago’s elevated rapid transit system was likewise designed in explicit counterpoint to the park system, the two systems complementing and reinforcing one another – providing Chicago with a dual *nature/culture* network for slow and fast mobility. *[fig50\_railroads and park system]*

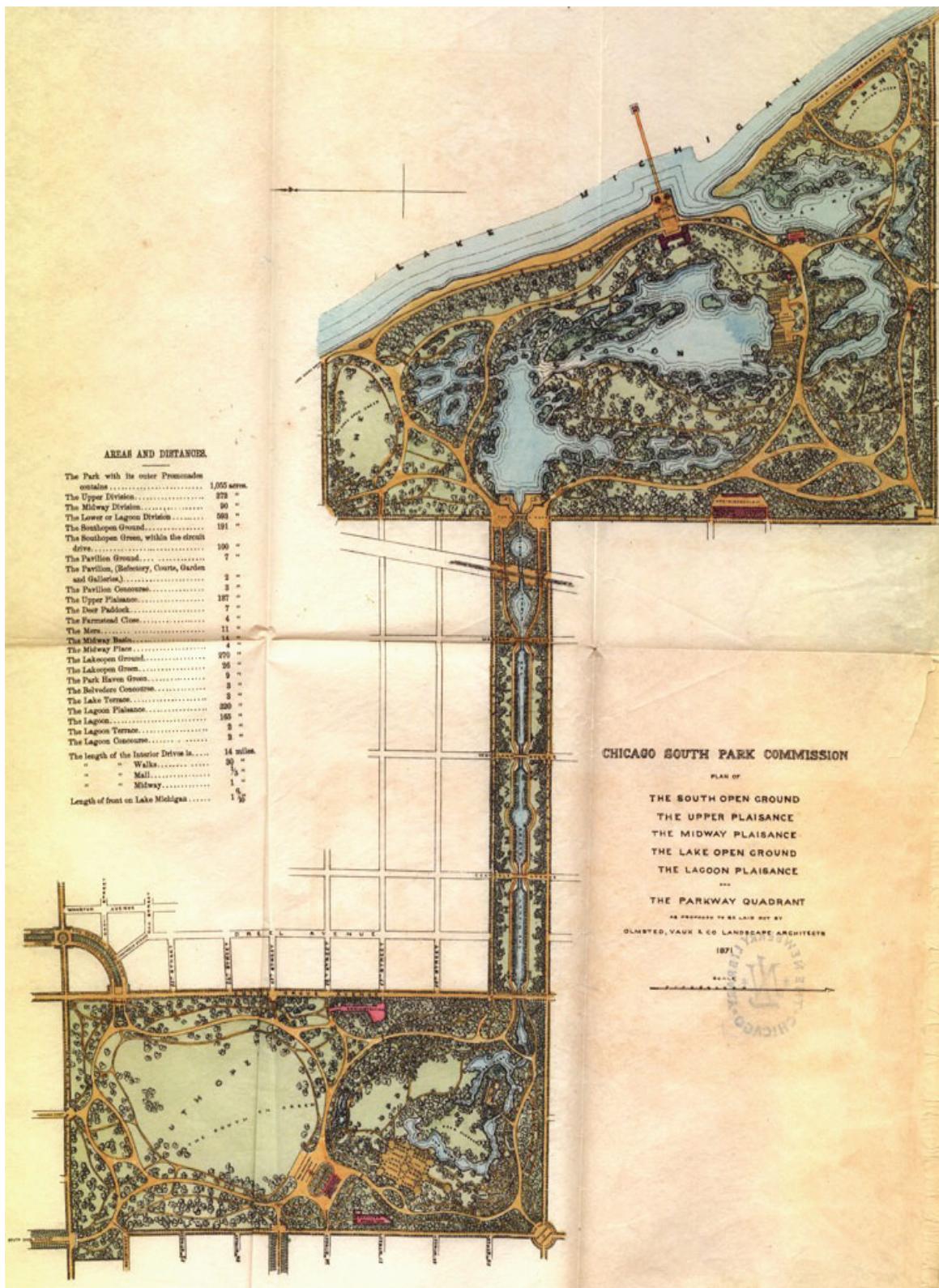
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<sup>153</sup> “West Park System.”

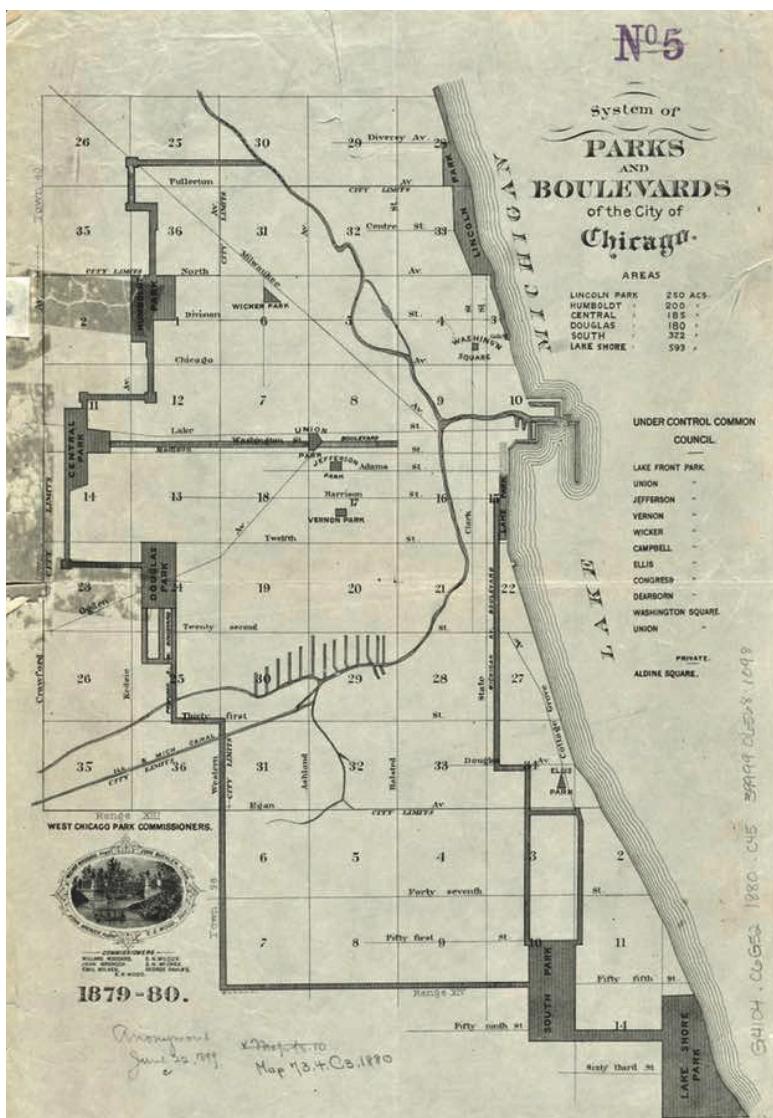


[fig46\_Dr. John Snow, map of cases of cholera treated (1855)] Original map by John Snow showing the clusters of cholera cases in the London epidemic of 1854, drawn and lithographed by Charles Cheffins, and included in the second edition of his book as a foldout between pages 44 and 45. *Image: public domain*



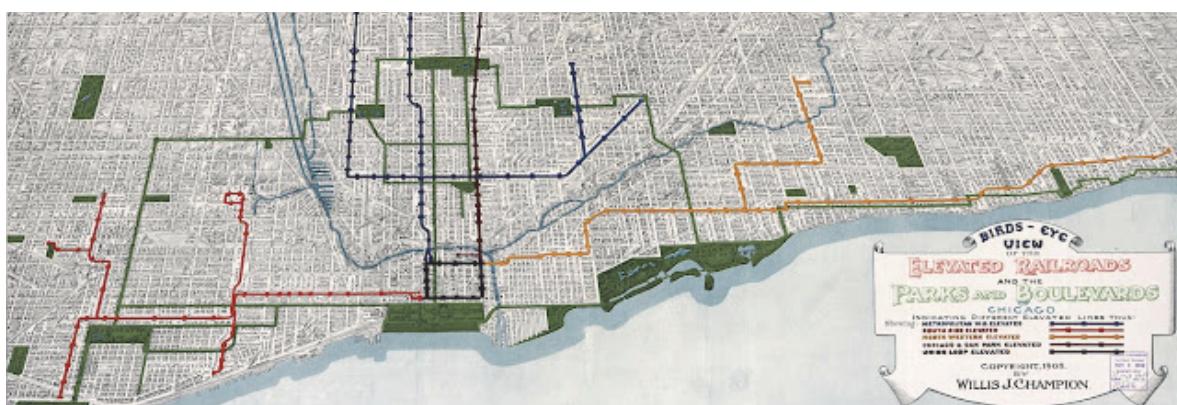


[fig48\_Olmsted, *Chicago South Park System* (1871)] FLO 01900



[fig49 *System of Parks and Boulevards of the City of Chicago (1879)*] This is the earliest plan that still exists of the complete system, although we know that Olmsted and Vaux had prepared one that was lost in the Great Chicago Fire of 1871. It is interesting to note that in addition to an index of park areas, this plan lists 11 park system segments as 'under control common council', and one as 'private'.

*Image: City of Chicago Department of Public Works*



[fig50 *Bird's-Eye View of the Elevated Railroads and the Parks and Boulevards of Chicago (1892-1908)*] *Image: City of Chicago Park Boulevard System Historic District*

### *1853 – Davis’s Llewellyn Park*

Just as public health concerns had prompted the creation of public parks and park systems in Chicago, it was the tragic deaths of four of New York businessman Llewellyn Haskell’s five sons to cholera in 1852 – and his own persistent poor health – that prompted him to hire Alexander Jackson Davis to create ‘the first landscaped residential park in America.’<sup>154</sup> The initial plan for Llewellyn Park in West Orange, New Jersey was established in 1853 – some 5 years before Olmsted and Vaux’s first plan for Central Park, and some 15 years prior to the Riverside community they created in Chicago. The site was selected for its gracious series of natural terraces, “ascending by easy gradations...to a summit seven hundred feet high – affording from every terrace a beautiful and unobstructed view of a wide and varied landscape”.<sup>155</sup> [*fig51\_llewellyn\_park*] The scheme as realized is a 425 acre landscaped residential community of 175 homes, with a central park of its own – ‘The Ramble’, a 50 acre common area – landscaped with streams and paths that weave throughout the site. First anticipating and from 1858 in direct competition with Central Park – a project described in a contemporary New York Times account as ‘that rival concern’ – Llewellyn Park’s accessibility by train from ‘the steps of City Hall’ was promoted as being more convenient than traveling to Central Park, taking ‘just the same time as trundling in an omnibus up or down all the length of a big city’ but being a more pleasant journey.<sup>156</sup> The Times editor writes, “Mount Orange [is] now...a shrine of beauty at which that much-chided, long-erring genius loci...is at last forgiven and restored to favor!” Lest such enthusiastic praise seem unfair towards Central Park, the editor qualifies these observations:

*We make these remarks on Llewellyn Park, not so much for praising a good thing already done, as for holding up a pattern for something like it that might be done elsewhere. It is a beautiful example which ought to find repetition in other quarters.*<sup>157</sup>

Of particular interest is the suggestiveness is the deliberately open-ended representation of the park corridors shown in the detailed plans from which the project was built – suggesting continuity of treatment beyond the project itself. [*fig52\_llewellyn\_park\_system*] Indeed, the process of implementing Llewellyn Park set in motion a number of additional private initiatives that together led to the creation of the first county-wide park system in America in 1894.<sup>158</sup> [*fig53\_essex\_county\_park\_system*] The first commissioner of the system was one Frederick Kelsey, who later wrote:

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<sup>154</sup> Jane B. Davis, “Llewellyn Park in West Orange, New Jersey,” *Antiques*, no. 107 (January 1975): 142.

<sup>155</sup> Editorial, “Llewellyn Park,” *The New York Times*, April 23, 1865,  
<http://www.nytimes.com/1865/04/23/news/llewellyn-park.html>.

<sup>156</sup> Editorial.

<sup>157</sup> Editorial.

<sup>158</sup> Frederick Wallace Kelsey, *The First County Park System: A Complete History of the Inception and Development of the Essex County Parks of New Jersey*. (New York: J. S. Ogilvie publishing company, 1905),  
<https://catalog.hathitrust.org/Record/002005167>.

*The Essex County park system was the first undertaking wholly under county initiative and control. The plan involved at the outset a dual method of administration: a special commission for selecting the parks, their development and future regulation, while the financing of the enterprise was left with the regularly constituted county authorities. In recent years we have become familiar with commissions for local parks, but I have not been able to learn that any similar county undertaking was in existence in 1894, at the time of the inauguration of this scheme.*<sup>159</sup>

In fact the implementation of this project was plagued by corruption and the undue influence of railroad interests, prompting Kelsey to write a book, *The First County Park System: A Complete History of the Inception and Development of the Essex County Parks of New Jersey* (1905), in which he thoroughly documents these difficulties. Trouble evidently began with the appointment of new committee members, of which Kelsey writes:

*...these appointees had [not] anything whatever to do with the formulative plans or the work of the first commission. Both were actively identified with large corporate interests... The contest between those contending for the public parkways and those favoring the...[Rapid Transit Company] with its allied forces, was an aggressive one. For more than five years the battle raged. The courts, the various governing bodies, civic associations, and the newspapers were active in the campaign.*<sup>160</sup>

The corporate agenda involved prioritizing trolleys over parks in public rights-of-way, ‘proceeding at once to place trolleys upon them’ and ‘keeping out the poor people’ by coordinating decision-making in a closed process.<sup>161</sup> After several years of divisive polemics, ‘irresistable public sentiment’ initially prevailed:

*The popular verdict had won, and the curtain had been rung down in the first act of this great play of the corporations against the people... a return postal card vote, an expression on the question, which declared a preference, by a majority of more than three to one, in favor of the parkway for Central avenue to the exclusion of the trolley there, by a direct vote of more than one-half of the entire electorate of the township...The matter was thus considered closed by the people, who had confidence in the commission, excepting, perhaps, all of those who knew of the determination and resource of the traction company, and recognized that the transfer proposition had still to run the gauntlet of...corporation interests [that] were,*

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<sup>159</sup> Frederick W. Kelsey, “Park System of Essex County, New Jersey,” *Annals of the American Academy of Political and Social Science* 35 (March 1, 1910): 266.

<sup>160</sup> Kelsey, 269–71.

<sup>161</sup> Kelsey, *The First County Park System: A Complete History of the Inception and Development of the Essex County Parks of New Jersey*, 194.

*as was then...understood, well entrenched. Again the scene of activity had shifted—not now to the court, nor for the parks, but to destroy the contemplated parkways, and to secure, if possible, regardless of cost or effort, another almost priceless county road franchise...As an army, in taking every possible advantage of its opponent, uses pickets, scouts and spies in its preliminary operations; so a great and opulent corporation, bent upon securing from the public valuable franchises, not infrequently uses cunning attorneys and not over-scrupulous politicians, both in and out of office; and, by liberal contributions to both political parties, secures the service of the party boss...prior to the public awakening for better civic conditions...While this kind of self-interest, masquerading under the name of any party, constitutes a condition which is neither Republican, Democratic, Populistic nor Socialistic, but is essentially oligarchic—the poison germ, which soon forms the rotten core in any free government; yet this is, nevertheless, a situation that must continue to be recognized and appreciated by the people, if an adequate remedy is to be applied.<sup>162</sup>*

So it was that the Essex County park system was only partially realized, and then through a contentious process that led Kelsey to give priority of consideration to the organizational form of governance:

*Whether an appointive or elective commission is preferable; where it is safest and best to lodge the appointing power under former plan of park organization; and whether, by any known method of legislative or municipal creation, it is possible permanently to secure park officials selected wholly for fitness, are questions too large to be discussed here. Commissioners who work solely from motives of civic pride and public spirit sooner or later discover the same lurking influences directly inimical to the public weal...The experience of Essex County should, however, not discourage those interested in securing public parks. The Commission...has accomplished excellent results; it has inspired public confidence, and has secured magnificent bequests. What it has done and is doing augurs well the future.<sup>163</sup>*

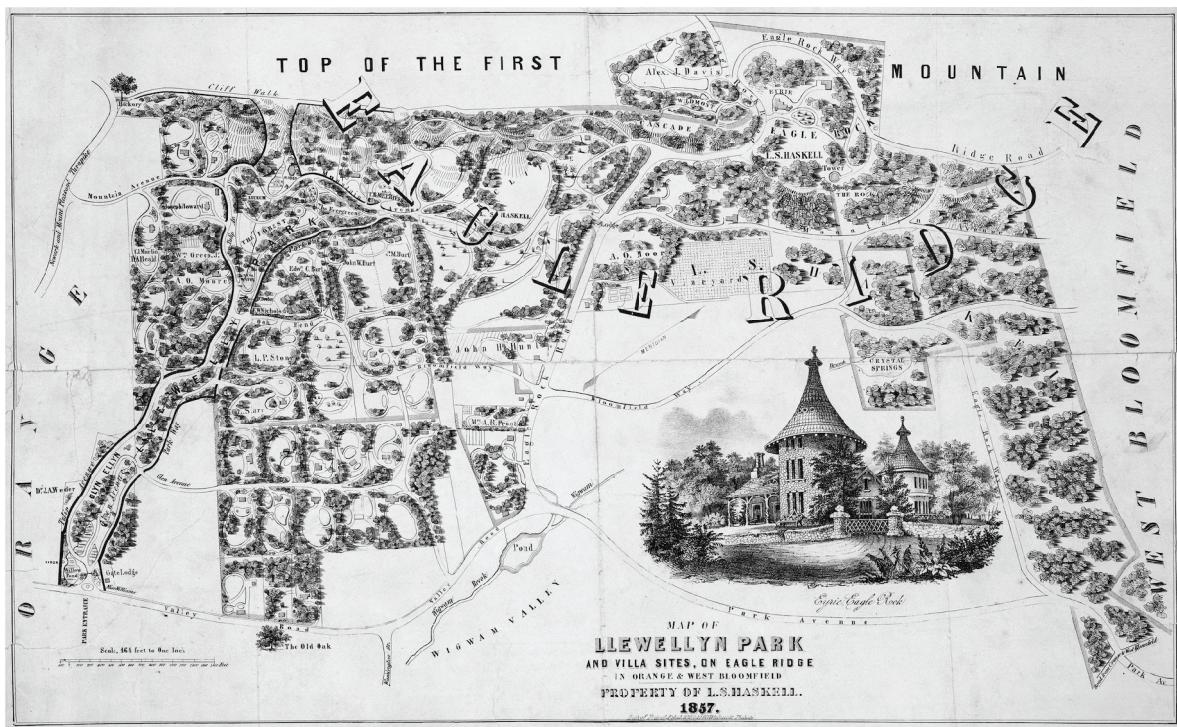
Curiously, the park commissioners of the Essex County park system never hired Alexander Jackson Davis to work on the project. Indeed, despite the remarkable variety, quality and innovation of his work Davis's star seems to have languished – not only in his own time, but into the present day. This is likely due, at least in part, to the fact that his archives have been kept private by his family and few of his drawings are available for research, and it is only now that one of his great-grand daughters – the historian Jane B. Davis, who has also written the authoritative history of Llewellyn Park – has decided

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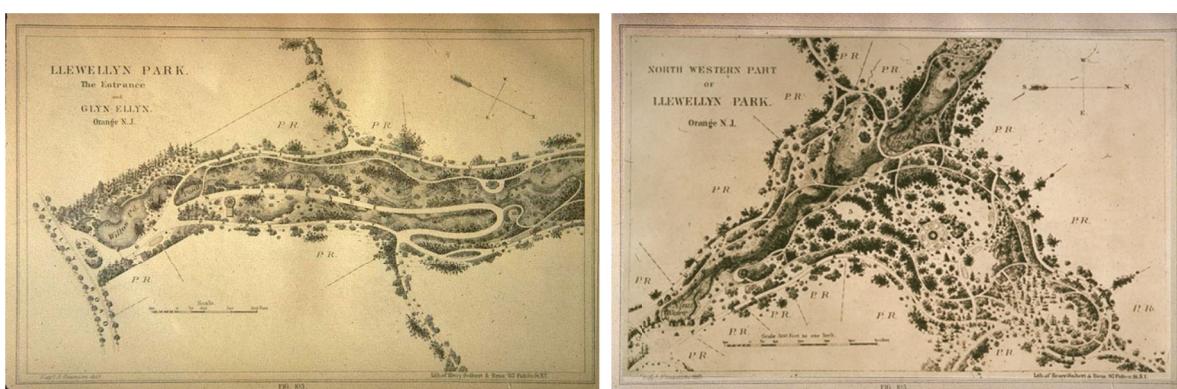
<sup>162</sup> Kelsey, 194–95.

<sup>163</sup> Kelsey, “Park System of Essex County, New Jersey,” 272.

to publish further material.<sup>164</sup> In any case, even in Davis's own lifetime the commission established for this early park system retained a series of landscape architects to undertake the design. Among the first of these was the Olmsted Brothers, sons of Davis's old collaborator and erstwhile competitor Frederick Law Olmsted.

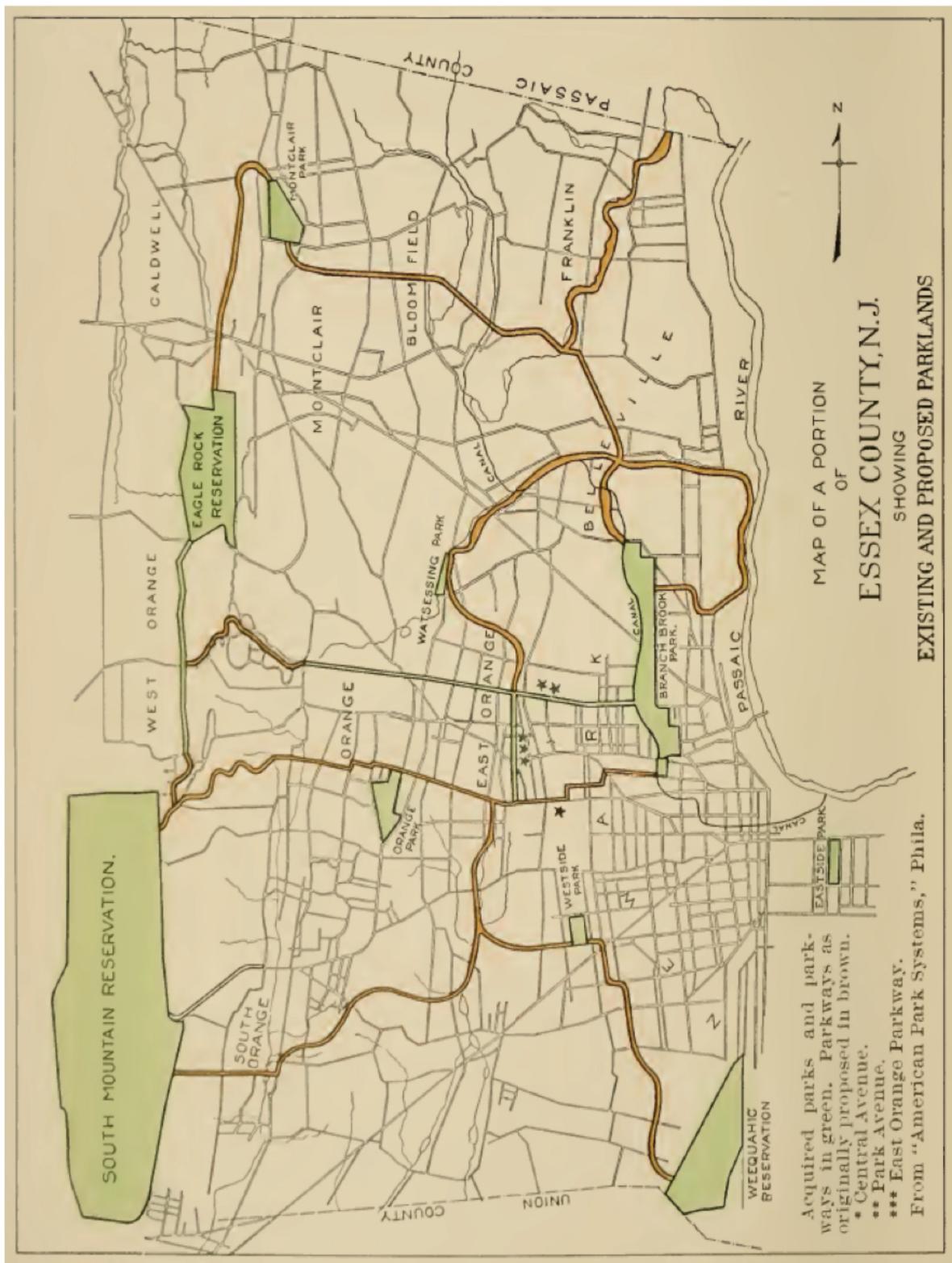


[fig51\_Llewellyn Park (1853, 1857)] Promotional map. MMA 24.66.1433



[fig52\_Llewellyn Park (1859)] Park system intersections and extensions, drawn by E.A. Baumann.  
Images: CHG 50.02-3, Courtesy Estate of E.A. Baumann

<sup>164</sup> Davis, "Llewellyn Park in West Orange, New Jersey." Note: Having met Mme. Davis I learned of this initiative, in which she has closely involved Avery Archive director emeritus Janet Parks.



[fig53\_Essex County Park System (1904)] LOC 6802139

### *1860 – Olmsted and Vaux’s New York Park System*

The first set of ‘parkways’ constituting something like a ‘park system’ was proposed by Olmsted and Vaux for Manhattan between 1860-65 ‘while the Central Park was in its earlier stages of progress’.<sup>165</sup>

*[fig54\_olmsted\_ny park system]* Indeed, this first attempt at a park system scheme was enabled by their role as members of the seven-member commission established by New York state legislature in April of 1860 to lay out the streets of Manhattan above 155<sup>th</sup> Street – an area beyond the jurisdiction of the 1811 Commission creating the gridiron street plan from 14<sup>th</sup> to 155<sup>th</sup> streets – but this 1860 commission was disbanded in 1865 before having issued an official outcome.<sup>166</sup> Olmsted and Vaux were subsequently appointed to the board intended to continue the project, but the controller of the board, one Andrew H. Green, excluded them from the process and derided their parkway proposal, citing the Manhattan commissioners statement that “...it would seem inexpedient...to attempt these fanciful arrangements to any great extent in a commercial city, under our form of government.”<sup>167</sup>

Olmsted and Vaux next revisited the idea when they were asked to design Prospect Park in Brooklyn. In the designer’s preliminary report to the Prospect Park Board of Commissioners, titled ‘A Classic Park Plan’ and dated January 24, 1866, they had already suggested this logic but had not yet coined the terms ‘parkway’ or ‘park system’ – instead describing the ‘system of sylvan roads’.<sup>168</sup> In their closing statement, titled ‘Suburban Connections’, they describe continuous linear park corridors linking the sea to the suburbs, the city and the park. At this point they were still optimistic their Manhattan ‘system...now being planned by the Commissioners of Central Park’<sup>169</sup> – of which, again, they were officially members – would be implemented. Here they made the case for implementing their ‘system of sylvan roads’ in Brooklyn, proposing a regional *rural urban* system of ‘sylvan’ mobility.

*Such an arrangement would enable a carriage to be driven on half of a summer’s day, through the most interesting parts of both the cities of Brooklyn and New York, through their most attractive and characteristic suburbs, and through both their great parks; having a long stretch of the noble Hudson with the Palisades in the middle distance, and the Shawangunk range of mountains in the background, in view at one end, and the broad Atlantic with its foaming breakers rolling on the beach, at the other. The whole might be taken in a circuit without twice crossing the same ground, and*

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<sup>165</sup> Frederick Law Olmsted, “The Concept of the ‘Park Way,’” in *The Papers of Frederick Law Olmsted: Writings on Public Parks, Parkways, and Park Systems*, ed. Charles E. Beveridge and Carolyn R. Hoffman (Baltimore: Johns Hopkins University Press, 1997), 140.

<sup>166</sup> Frederick Law Olmsted, *The Papers of Frederick Law Olmsted: Writings on Public Parks, Parkways, and Park Systems*, ed. Charles E. Beveridge and Carolyn R. Hoffman (Baltimore: Johns Hopkins, 1997), 145 fn.35.

<sup>167</sup> Olmsted, “The Concept of the ‘Park Way,’” 140 n.Olmsted is quoting from Andrew H. Green’s report to the Central Park board, see footnote 37.

<sup>168</sup> Frederick Law Olmsted, “A Classic Park,” in *The Papers of Frederick Law Olmsted: Writings on Public Parks, Parkways, and Park Systems*, ed. Charles E. Beveridge and Carolyn R. Hoffman (Baltimore: Johns Hopkins University Press, 1997), 105.

<sup>169</sup> Olmsted, 105.

*would form a grand municipal promenade, hardly surpassed in the world either for extent or for continuity of interest.*

Closing the report, they make a curious provisional statement regarding these proposals:

*This suggestion forms no part of our plan and may seem premature, but there can be but little danger of too extended a provision with reference to future improvements which may grow out of so important a work as that upon which your Commission is engaged, and we have, therefore, in the preparation of the design herewith submitted endeavored, as far as possible, to arrange for a proper connection with any undertakings of the character indicated which may be hereafter found to be required.<sup>170</sup>*

Their January 1, 1868 ‘Report of the Landscape Architects and Superintendents’ to the Prospect Park Board of Commissioners, titled ‘The Concept of the Parkway’, is the first synthesis given to these concepts as the logical extension of the work they’d done on Central Park. In the report the designers urge the clients to implement their ‘parkway’ proposal for Brooklyn, specifically emphasizing the competitive advantage they would attain over Manhattan – whose commissioners had by then made it clear that they did not intend to implement that first park system design. The designers close their report with a section titled ‘Advantages of the Parkway Likely to be Secured to Brooklyn Exclusively’, arguing:

*It is clear, therefore, that the Central Park Commissioners have no intention of carrying out, in New York, any such scheme as the ‘Parkway’ and consequently, if, as we believe, the requirements that such a plan is designed to meet are already felt to exist in this community, Brooklyn can soon be made to offer some special advantages as a place of residence to that portion of our more wealthy and influential citizens, whose temperament, taste or education lead them to seek for a certain amount of rural satisfaction in connection with their city homes.<sup>171</sup>*

The essential logic of parkways is to provide access between suburb, city, and parks.<sup>172</sup> In recent decades urban historians have identified the park system as one of the pioneering urban design works accomplished in the United States, and have referred to it as one of the greatest contributions to city planning in the United States.<sup>173</sup> Some scholars argue that park systems have had a greater influence on

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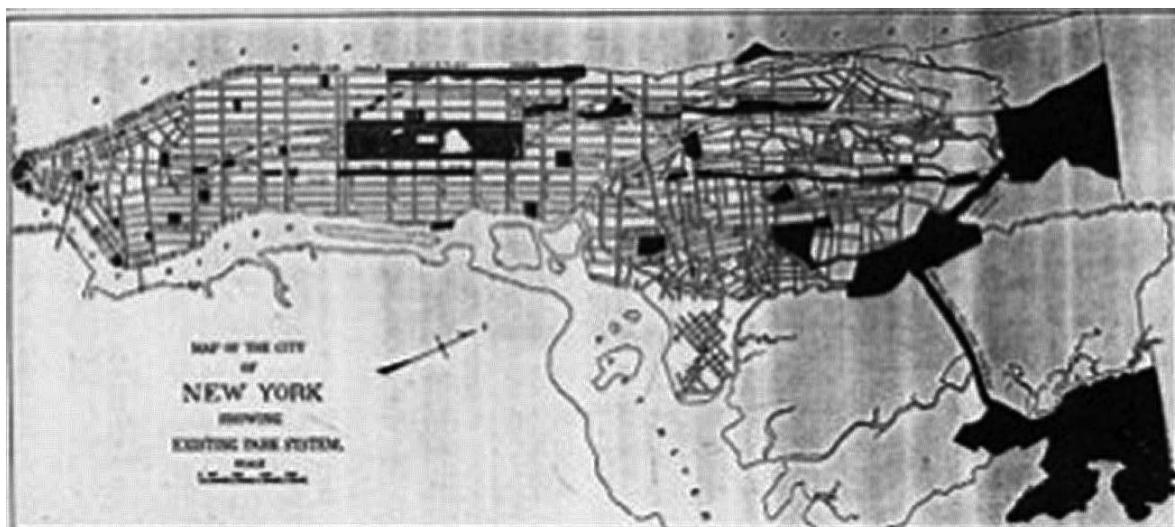
<sup>170</sup> Olmsted, 105–06.

<sup>171</sup> Olmsted, “The Concept of the ‘Park Way,’” 140–41.

<sup>172</sup> Olmsted, 128–30.

<sup>173</sup> Sonja Dümpelmann, “The Park International: Park System Planning as an International Phenomenon at the Beginning of the Twentieth Century,” *German Historical Institute*, no. 37 (Fall 2005): 75–76.

cities and planning disciplines than, for example, monuments and civic centers.<sup>174</sup> David Schuyler has noted that “by the end of the [nineteenth] century, under the leadership of Olmsted and his colleague Charles Eliot, the park system became a comprehensive metropolitan solution to the recreational needs of the modern city,”<sup>175</sup> while Peter Hall has argued that “U.S. cities pioneered the concept of an integrated park system planned in advance.”<sup>176</sup>



[fig54\_Olmsted and Vaux, New York Park System, (1860)] Drawing circa 1880. LOC 6802139

<sup>174</sup> Jon A. Peterson, *The Birth of City Planning in the United States, 1840–1917* (JHU Press, 2003), 42, 162.

<sup>175</sup> David Schuyler, *The New Urban Landscape: The Redefinition of City Form in Nineteenth-Century America* (Johns Hopkins University Press, 1988), 5, 149.

<sup>176</sup> As quoted in Dümpelmann, “The Park International: Park System Planning as an International Phenomenon at the Beginning of the Twentieth Century,” 84; Robin F. Bachin, *Building the South Side: Urban Space and Civic Culture in Chicago, 1890-1919* (University of Chicago Press, 2004), 167.

### *1869 – Frederick Law Olmsted’s Park Systems*

Frederick Law Olmsted’s relationship with Alexander Jackson Davis is a subject that merits further research. We know, for example, that Olmsted contacted Davis about designing the buildings for his own farm at Sachem’s Head – the 70 acre farm Olmsted’s father had gifted him with when he was 24 years old.<sup>177</sup> Davis was then 43. Nevertheless, the elder Davis was commonly associated with Olmsted and Vaux – the three of these representing the landscape architecture ideal of designing ‘naturalistic plans and vernacular architecture to create the illusion of country villages set in picture-perfect landscapes that had developed organically over long periods of time.’<sup>178</sup> Olmsted scholar Robert Kirkman writes, in his perceptive essay *Rousseau in the Garden* (2004):

*Davis’ 1859 plan for Llewellyn Park, New Jersey, and Olmsted and Vaux’s 1869 plan for Riverside, Illinois, set the standard for the first phase of suburbanization in America. With winding roads, houses widely separated by trees and park-like lawns, and common park lands such as the 50-acre Ramble at Llewellyn Park.*<sup>179</sup>

The fact that Llewellyn Park’s ‘Ramble’ anticipated, and seems to have directly informed Central Park’s famed ‘ramble’ is also a noteworthy connection between Davis and Olmsted – this feature of Central Park has likewise inspired many other park designers to adopt the name for areas in their own parks. It has become an archetypal atmosphere, if not a typology.

Likewise, by time Chicago’s park system drawing was published in 1880 Olmsted and Vaux had gotten the narrative and method of park systems into a working model for design practice. The productivity of the Olmsted studio is frankly astonishing – a brief review of the output of the Olmsted studio in the period from 1858-28, the first seventy years, shows over 7200 projects, of which nearly 1100 were parks. Of these 170 projects were park systems or park system components (road systems, parkways, boulevards and playgrounds). [fig55\_olmsted project index] To my knowledge a complete inventory of the Olmsted studio projects has not been published to date, and I prepared the detailed table that follows on the basis of the Olmsted project master list kindly provided to me by Anthony Reed, the head archivist at the Frederick Law Olmsted National Historic Site at Olmsted’s original home studio in Brookline, near Boston.<sup>180</sup> For comparison, also in a seventy-year period – some thirty years later - Frank Lloyd Wright’s studio produced about 1100 projects (like Olmsted’s 1100 parks – only a sixth of the overall production) and the archives consist of 20,000 drawings and incidental materials enough to fill six train wagons.

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<sup>177</sup> Justin Martin, *Genius of Place: The Life of Frederick Law Olmsted* (Hachette UK, 2011), 67.

<sup>178</sup> Gary Backhaus and John Murungi, *Earth Ways: Framing Geographical Meanings* (Lexington Books, 2004).

<sup>179</sup> Robert Kirkman, “Rousseau in the Suburbs,” in *Earth Ways: Framing Geographical Meanings*, ed. Gary Backhaus and John Murungi (Lexington Books, 2004), 54.

<sup>180</sup> “Olmsted Archives - Frederick Law Olmsted National Historic Site (U.S. National Park Service),” accessed October 24, 2017, <https://www.nps.gov/frla/olmstedarchives.htm>.

Seventeen projects in the Olmsted archives bear the phrase ‘park system’ in the title, others employing the terms parkways, boulevards, etc.) While a comprehensive review of the Olmsted studio production of park systems is beyond the scope of this dissertation, for the moment it is sufficient to point out two of Olmsted’s earliest built park systems. The first of these was the park system in Buffalo, New York – a multimodal system worked into the existing city grid, and opportunistically linking three park sites that the city had proposed as alternatives: Olmsted and Vaux stitched them together with playgrounds, bike paths and densely planted boulevards. [*fig56\_olmsted\_buffalo\_park\_system*] The park system was built prior to the arrival of automobiles, and featured broad avenues and dedicated cycling paths, horse paths, and pedestrian paths. [*fig57\_buffalo\_postcards*] The parks popularity ensured that it continued to expand, and within 100 years it was nearly triple its original area, and continues to expand. It is a complete park system, as Olmsted had envisioned, connecting rural and urban ‘from the backyard to the wilderness’. [*fig58\_buffalo\_park\_system*]

In keeping with the themes of freedom and mobility, it is an exemplary project, and all of Frank Lloyd Wright’s projects in the city adjoin the park system: the Larkin administration building of and Martin House Complex of 1903, the Rowing Club Boathouse of 1905 (designed for Madison), the Buffalo Gas Station and the Graycliff Estate of 1927. [*fig59\_olmsted-wright\_buffalo*] The early success of this citywide park system provided a strong incentive for others to try it. And in terms of the ability of parks to explicitly serve as an infrastructure for social and civic institutions, is also interesting to note that one of the original park nodes - ‘The Parade’ – was renamed ‘Martin Luther King, Jr. Park’ in 1977.<sup>181</sup> As the Buffalo park system was being built, Olmsted began work on a park system for Boston that came to be known as *The Emerald Necklace* – the relatively tame, formal qualities of which the Buffalo system does not prepare one for. Here is a *park system* as a fully-fledged *ecological corridor*, some 100 years before that phrase came into use. [*fig60\_olmsted\_boston\_park\_system*]

The territorial figure of the Emerald Necklace is so startlingly powerful because it exactly mediates between areas defined by existing ecological dynamics and areas defined by the urban grid, yielding irregular yet continuous corridors for nature throughout the city. The figure can be said to have been ‘revealed’ rather than ‘imagined’: it is *design* in the spirit of the Greek origin of the term, exemplifying design as both *via positiva* and *via negativa* in deriving *where to build what* as well as *where not to build*. This memorable figure paired with its notably famous name provides a suitably authentic icon of *civic design*, aptly representing Olmsted’s many contributions to the discipline. Characteristically, the first step taken in the design was to reimagine an existing country road as a broad parkway axis, connecting the Back Bay with the ‘public pleasure ground’ at Chestnut Hill on the Charles River.

This parkway was named Beacon Street and became a corridor with nine dedicated lanes – for pedestrians, bicycles, horses, and tramway – divided with four rows of trees. Originally intended to be

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<sup>181</sup> “Martin Luther King, Jr. Park | Buffalo Olmsted Parks Conservancy - His Legacy. Our Inheritance.,” *Buffalo Olmsted Parks* (blog), accessed October 24, 2017, <https://www.bfloparks.org/parks/martin-luther-king-jr-park/>.

bordered by single family residences, the effect of the public interest in living in close proximity to the corridor, and therefore enhanced real estate values, led to steadily greater densification and continuous townhouses soon lined the parkway. These townhouses are interspersed by some of the earliest apartment buildings, designed in collaboration with the Olmsted team by his close associates - several are of exceptional design quality, and merit comparison with the best of Geddes's and Wright's apartment projects. Most of these apartment projects employ 'the trope', and are designed around green courtyards that are directly linked to Olmsted's Beacon Street corridor – often with natural features like watercourses or stands of mature trees – demonstrating the cumulative coherence of the *park system*. This early example of the parkway connecting Boston with Olmsted's community in Brookline has since been functionally and visually eroded by consistent expansion of automobile lanes and parking, and it tends to be a forgotten element of the Emerald Necklace.

So in Buffalo, New York (1868) the first clear park system project was created, featuring that new innovation – the parkway – broad avenues lined with a dozen rows of elm trees, suitable for walking, biking, riding, or driving, and connecting several distinct park sites from the lakefront at the center of the city to its outer edge. The territorial figure of this project is expressive of the phrase 'park system', but the logic behind it is still active and in Olmsted's studio it continued to yield impressively varied formal expression. While Buffalo was still on the boards, the territorial figure of park systems received two radically different formal treatments on two very different sites in Chicago. In decisively suburban Riverside (1969) the early inspiration of Birkenhead is taken to its extreme in the 'site-responsive' direction, while in the massive park system for central Chicago (1871) the 'grid-responsive' orthogonal parkway became amplified. Utilizing the same formal logic as the Buffalo project, that is to say responsive to the existing context urban grid, in central Chicago the territorial figure is compact and decisively orthogonal. In Riverside it highlights the opposite polarity – that responsiveness to the existing site early inspired by Birkenhead Park, whose territorial figure is represented by the analogy of an Emerald Necklace. And in each instance there are elements of both design polarities. Beacon Street's axial corridor from Boston to Brookline is a modest approximation of Chicago's 'Midway Plaisance', and both projects have formal affinities with the 'missing link' strategies of Goethe and Nash: like Goethe's 1778 move to connect two castle gardens along the river, and Nash's mandate to connect two London parks, Beacon Street terminates in two civic centers and the Midway Plaisance connects a civic center to the waterfront.

Olmsted's *park system* projects, including those in Chicago, Buffalo and Boston, were simply called 'park systems' – nevertheless, as we've seen in the project index, such projects are also comprised of component elements, often as phases in these intergenerational projects, referred to variously as road systems, bicycle paths, parkways, boulevards and playgrounds. By the end of the century, Olmsted-style park systems had been taken up by the studios various and adept protégés, and each called the systems by slight variants. When Olmsted personally arranged for Fredericka and

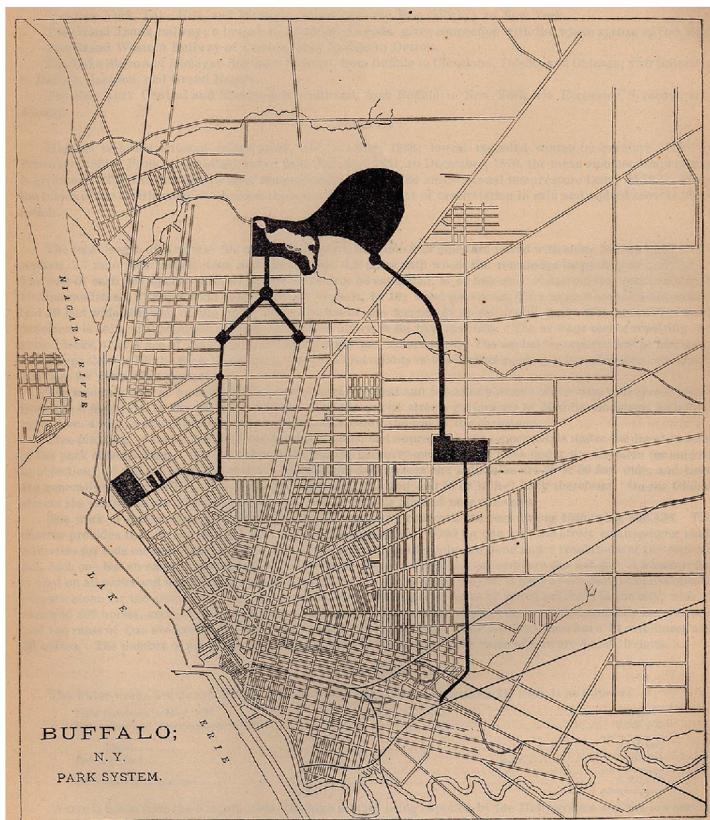
George Kessler to take on that early park system in Kansas City in 1893, they labeled the plan 'Proposed System of Boulevards and Park Systems.' Of course the Kessler's are an exception in this legacy insofar as they never worked in Olmsted's studio. This is evidenced by the rather eccentric aesthetic quality of their drawing – a world away from the Olmsted studio's articulated refinement.

**[fig61\_kessler\_kansas city]** The Kessler's collaborators were also essentially independent from the Olmsted lineage, and we will return to these in the following chapter. Among these collaborators, perhaps the most familiar is Henry Wright (1878-1936) – known as being a forthright advocate of green belts and the garden city idea, a concept created by Sir Ebenezer Howard.

#### OLMSTED STUDIO PROJECT INVENTORY

|                            |      |              |            |
|----------------------------|------|--------------|------------|
| Parks                      | 1086 | Park System' | 17         |
| City and Regional Planning | 288  | Road System' | 1          |
| Subdivisions               | 514  | Parkway'     | 83         |
| Schools                    | 406  | Boulevard'   | 18         |
| Institutions, Residential  | 149  | Playground'  | 51         |
| Public Buildings           | 146  |              | <b>170</b> |
| Private Estates            | 3173 |              |            |
| Cemeteries                 | 285  |              |            |
| Commercial and Industrial  | 180  |              |            |
| Clubs and Resorts          | 165  |              |            |
| Churches                   | 100  |              |            |
| Exhibitions and Fairs      | 29   |              |            |
| Arboreta                   | 22   |              |            |
| Misc.                      | 688  |              |            |
|                            | 7231 |              |            |

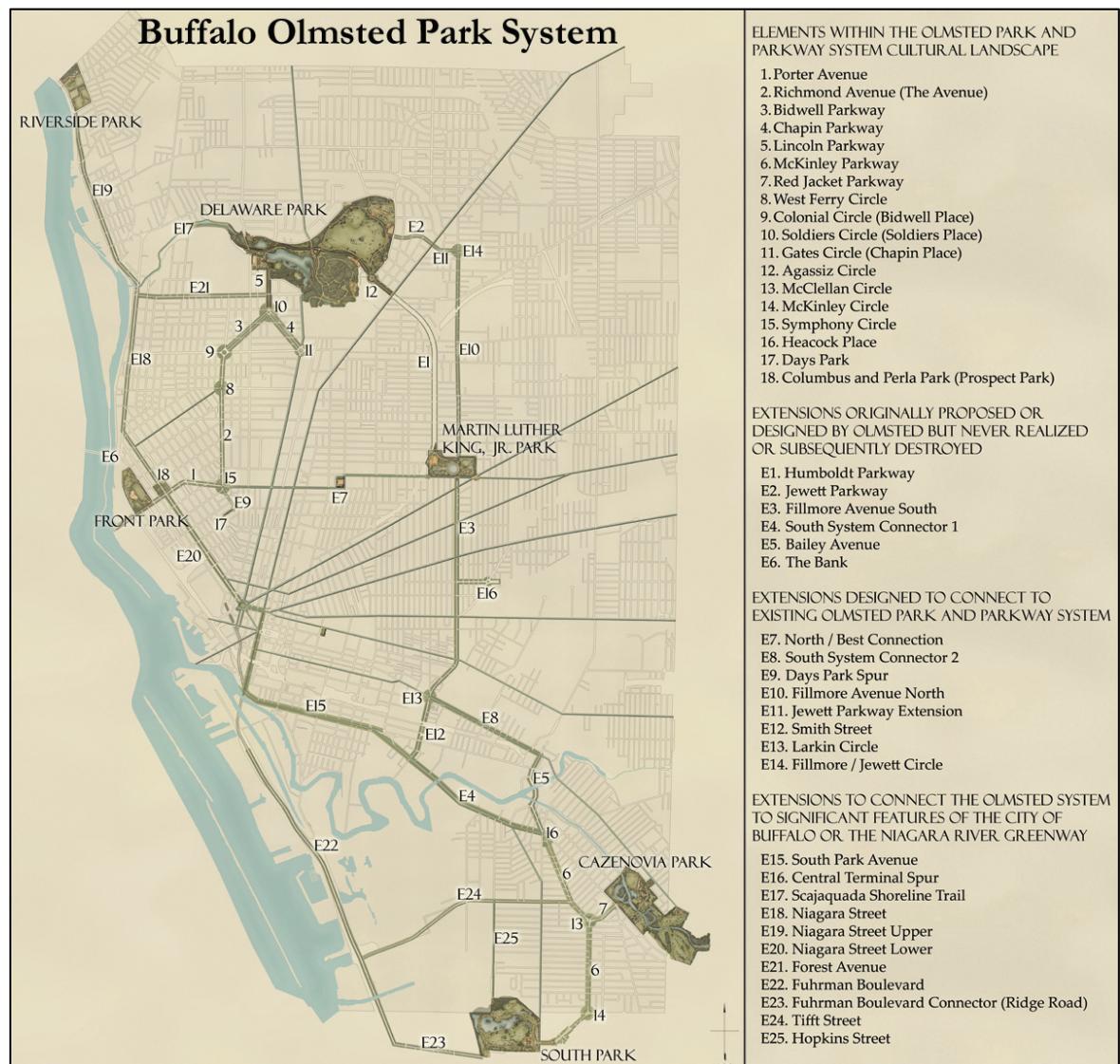
**[fig55\_Olmsted Studio, project index]**



**[fig56\_Olmsted, Buffalo Park System (1876)]** Drawing circa 1880. LOC



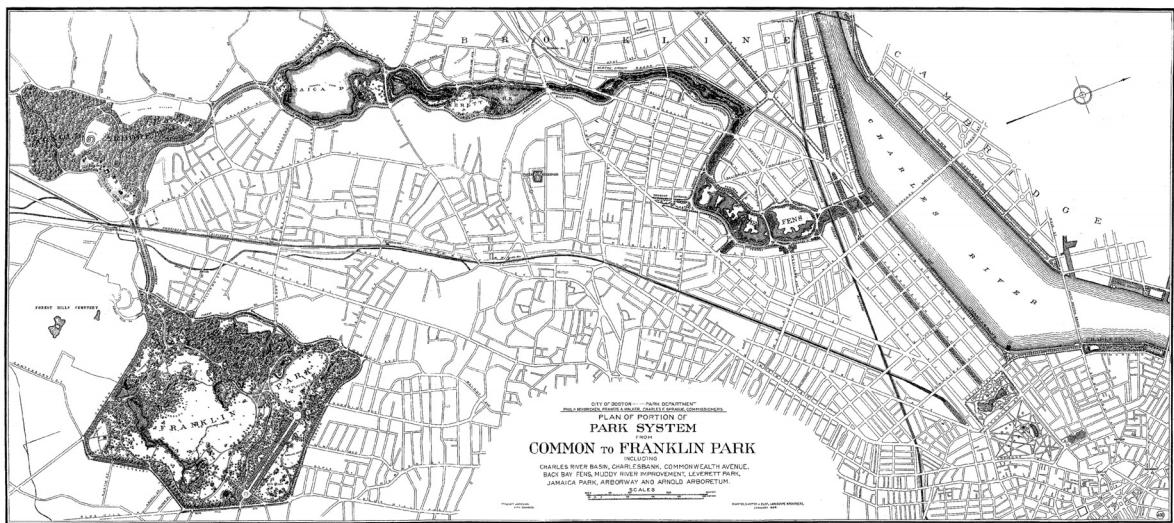
[fig57\_Buffalo Park System, bicycle and boulevard postcards (1880)] (left) 'Delaware Park,' (right) 'Cycle Path, Lincoln Parkway'. BHM



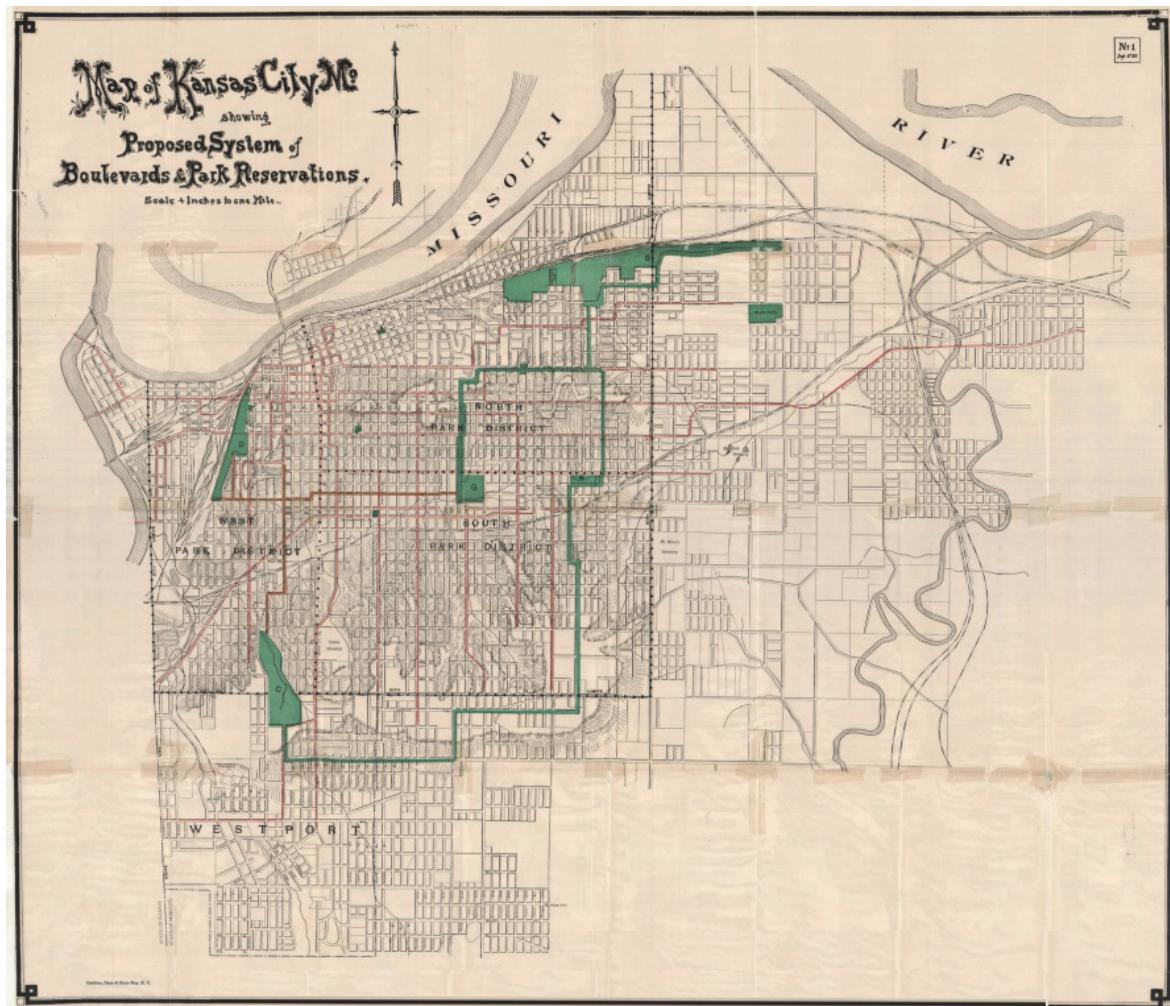
[fig58\_Buffalo Park System (1980)] BHM



[fig59\_Olmsted/Wright in Buffalo] Olmsted's park system armature and Wright's enclaves. *Image: the author*



[fig60\_Boston Park System (1882)] BHM



[fig61\_George Kessler, Kansas City Park System (1893)] KCP

*1898 – Ebenezer Howard's Chicago and the invention of the 'Garden City'*

Ebenezer Howard [1850-1928] introduced his conception of ‘garden cities’ in *Tomorrow: A Peaceful Path to Real Reform* in 1898, described by his younger colleague John Nolen (1869-1937) – in an homage to Howard the year before his death – as advocating for

*...a mix of physical planning and social reform [that] avoided the problems of existing cities, and it seemed ideally suited to American circumstances, where agrarian beginnings and Jeffersonian notions of democracy had evolved into an artistic cultivation of the rural ideal.<sup>182</sup>*

Born in London in 1850, Howard had moved to Howard County, Nebraska in 1871 – the same year of the great fire in Chicago. This move was evidently influenced by his farmer uncle, but farming was not to be his great passion, and within a year Howard had moved to Chicago, where he was a first hand witness to its reconstruction after the fire. In fact Chicago’s city motto since its incorporation in 1837 is the Latin phrase ‘Urbs in Horto’ – *city in a garden.* [fig62\_chicago\_urbs in horto] As this motto was, and still is, emblazoned on every sign with a city emblem, we can be reasonably confident that Howard was also familiar with it, and that it was likely in his mind when he used the phrase *garden city*. Howard lived in Chicago until 1876, when he returned to London.

In 1888 Edward Bellamy published his utopian socialist novel *Looking Backward*, and in 1893 – the year of the Columbian Exposition back in Chicago, Howard established a discussion group around Bellamy’s ideas. Having found the book difficult to find, Howard persuaded a London publisher to bring out a ‘pirate’ edition by agreeing to compile an index and to buy a hundred copies.<sup>183</sup> John Nolen observed that although Howard ‘eventually decided that Bellamy’s conception of the all-encompassing state as one gigantic trust was the antithesis of true socialism, the idealized harmony of communal ownership and the tidy urban order that the novel described had a lasting effect.’<sup>184</sup>

Here it must be noted that at this moment Bellamy was also having a profound impact on the thinking of Frank Lloyd Wright, who was still in Chicago and just then responsible for the design and construction supervision of the façade of Adler and Sullivan’s Transportation Building at the Columbian Exposition. Shortly after its opening in 1893 he began his own studio in 1894. Wright also regularly cited Bellamy’s *Looking Backward*, most frequently in later year as inspiration for his conception of Broadacre City (1934-58). In his second book dedicated to the subject of Broadacre City, *When Democracy Builds* (1945), Wright went so far as to title the afterword of *Looking Backward*, honoring Bellamy much as he later honored Emerson by including his ‘Essay on Farming’ as an appendix in his final book on the subject, *The Living City* (1958).<sup>185</sup>

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<sup>182</sup> John Nolen, *New Towns for Old: Achievements in Civic Improvement in Some American Small Towns and Neighborhoods* (Univ of Massachusetts Press, 1927), xlvi.

<sup>183</sup> Nolen, xlvi.

<sup>184</sup> Nolen, xlvi.

<sup>185</sup> Frank Lloyd Wright, *When Democracy Builds* (Chicago: Chicago University Press, 1945), 138; as noted by Neil Levine, *The Architecture of Frank Lloyd Wright*, Revised edition (Princeton, N.J.: Princeton University Press, 1997), 489–90; Frank Lloyd Wright, *The Living City* in *Frank Lloyd Wright Collected Writings Vol.5: 1949-1959*, ed. Bruce Brooks Pfeiffer, vol. 5 (Random House Incorporated, 1995), 341.

This is particularly telling, as the first exhibition of Broadacre City at New York's Rockefeller Center in 1935 featured two large panels at the entry of the exhibition, arranged side by side like the two tables of the Ten Commandments. Both panels are boldly titled in capital letters. The panel on the right is titled 'BROADACRE CITY COMMEMORATING' and lists fourteen figures: "Moses, Spartacus, Heraclitus, Goethe Mazzini, Count Tolstoi, Prince Peter Kropotkin, Silvio Gesell, Henry Thoreau, Henry George, William Blake, Louis Sullivan" and "not forgetting Thorstein Veblen" and ending with "Edward Bellamy". Likewise, the panel on the left was titled 'REQUIRED READING FOR STUDENTS OF BROADACRE CITY', and lists the names of twelve authors: "Laotze, Jesus, Spinoza, Voltaire, Walt Whitman, Henry George, William Blake, Louis Sullivan" and "not forgetting Nietzsche, Thoreau, Emerson."

We will take up this discourse more fully in 2.3 \_Civic Design – for the moment it is adequate to note the common origins of the Garden City and of Broadacre City, and to make the point that by the turn of the century Howard's Garden City had spurred an international movement. The 1898 publication of *Tomorrow: A Peaceful Path to Social Reform* proved popular enough to require a second edition four years later, which Howard retitled *Garden Cities for Tomorrow* (1902). The latter edition includes a succinct summary of Howard's great ambition, anticipating Wright's similar statements by several decades: "*Town and country must be married, and out of this joyous union will spring a new hope, a new life, a new civilization.*"<sup>186</sup> [fig63\_garden city diagram]

Within several years a prototype garden city was under construction at Letchworth, its relative success followed by Welwyn, where Howard himself was to retire.<sup>187</sup> Both of these communities are in the County of Hertfordshire, England. This continuity of intent was recognized by the City Club of Chicago's Civic Secretary George E. Hooker, an important figure in the discourse to follow, who wrote an homage to the garden cities movement in 1914 as a contribution to the civic design discourse, noting,

*The garden city movement...is an effort to bring up to standard, according to hygienic, esthetic, and social requirements authoritatively and generally recognized – and to do that in the face of opposing dogmas, orthodoxies, and even property rights...the moral of the garden city movement...is that human welfare is more and more to prevail, as a motive in...policy, over commercial aims.*<sup>188</sup>

Hooker's essay concludes with a detailed financial analysis of Letchworth, and correlates its modest success (it yielded approximately 1 percent returns on investment) with the alternative paradigm of 'coöperative purpose', referring to several examples of the 'most brilliant success...by applying the unbusinesslike principle of coöperation'.<sup>189</sup> He concludes...

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<sup>186</sup> Robert Fishman, *Urban Utopias in the Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier* (MIT Press, 1982), 27.

<sup>187</sup> Walter L. Creese, *The Crowning of the American Landscape: Eight Great Spaces and Their Buildings* (Princeton, N.J.: Princeton University Press, 1985), 153.

<sup>188</sup> George E. Hooker, "Garden Cities," *Journal of the American Institute of Architects* 2 (February 1914): 81, 88.

<sup>189</sup> Hooker, 89.

*Each and all these principles directly contradict prevailing business principles... The whole set of forces and circumstances in this situation must be reorganized from a leverage outside itself, and as a social necessity, not as a business enterprise. We are challenged to a wider and wider application of garden city principles, both in voluntary and official action...*<sup>190</sup>

In *Search for Environment: The Garden City Before and After* Howard scholar Walter Creese writes of Howard's having 'observed Olmsted's suburban town of Riverside' while on the same page stating that 'he [Howard] would have found considerable food for thought if he had taken the trouble to visit the suburb,' finally noting that 'it could be assumed merely by virtue of Howard's residence in Chicago that he would be cognizant of Riverside.'<sup>191</sup>

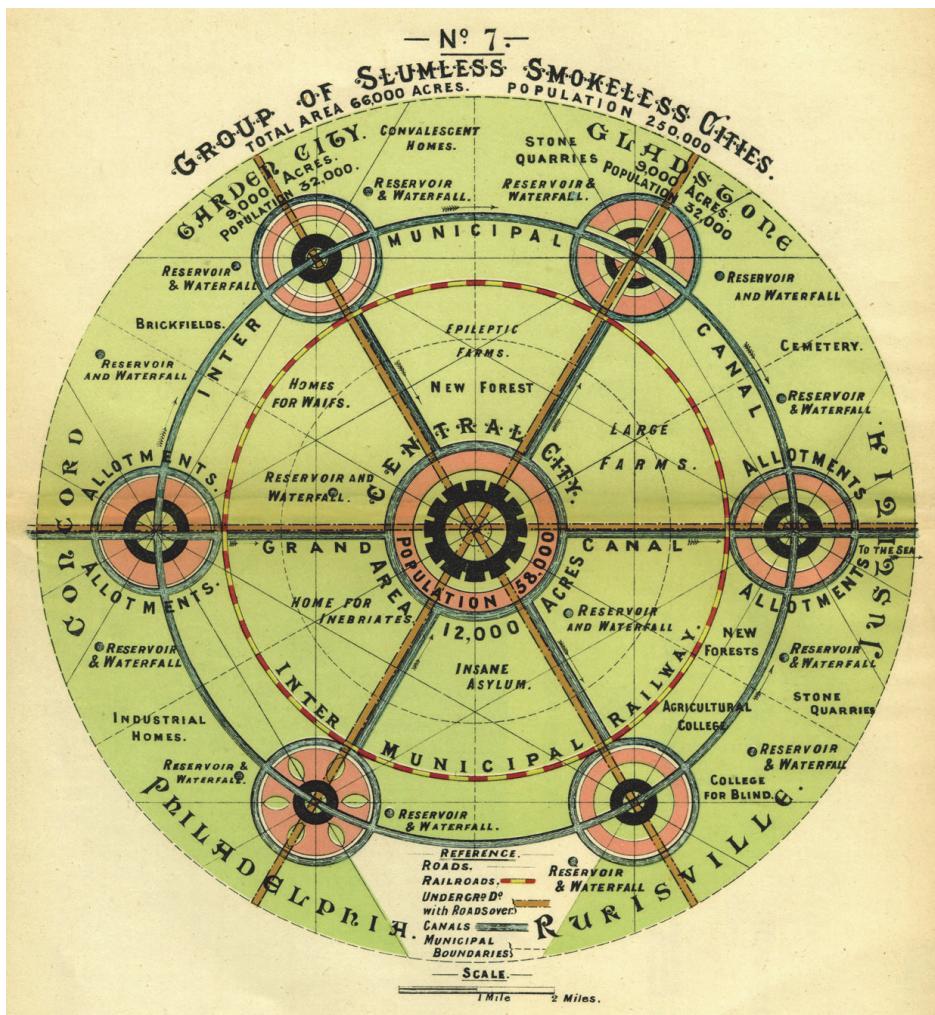
An entire literature exists on the tradition of gardens cities, but for our purpose here it is enough to highlight the correlation between park systems and the garden city idea by comparing the idealized regional scale diagrams Howard had published of his schematic, geometric Garden City, and the plans of the cities of Letchworth and Welwyn as they were actually built *in situ*.  
[fig64\_letchworth\_welwyn] On one hand, although these are effectively 'new cities' they are remarkably responsive to existing conditions, and it is evident that none of Howard's formal geometry remains, and the layouts are generally rather informal. In the case of Welwyn there are moments that look very much like Olmsted and Vaux's Riverside, indeed – however it must be said that in both cases the architectural results are strikingly Victorian and old-fashioned. This cloying, dated quality also made *park systems* and their *civic designers* an easy target for the radical modernists of the new century, many of whom initially tended to eschew cooperative rural and ecological considerations as passé – their enthusiasm was reserved for *urbanisme*, which they regarded as avant-garde.



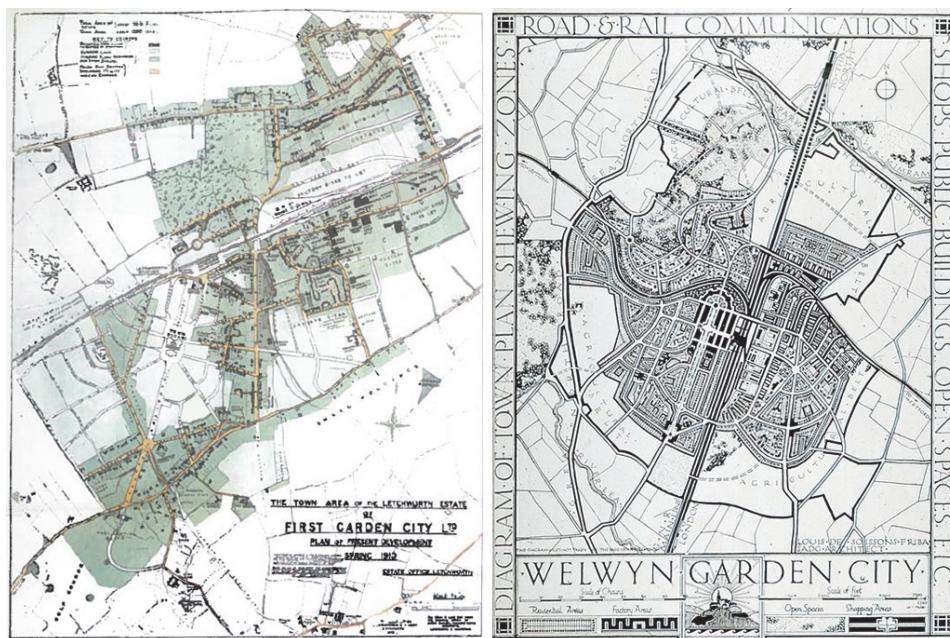
[fig62\_Chicago Seal, Urbs In Horto (1837)] One interpretation of the motto's origin holds that this reflected an appeal from the city's first mayor, William Ogden. Shortly after he became mayor the nation fell into a financial panic, and Ogden paid off the city's debts by taking out personal loans and paying the bills. He also encouraged his fellow Chicagoans to plant their own gardens in the city's open plots and peripheral fields.

<sup>190</sup> Hooker, 91.

<sup>191</sup> As also noted in Neil Levine, *The Urbanism of Frank Lloyd Wright* (Princeton University Press, 2015), 396.



[fig63\_Garden City diagram (1901)] LOC



[fig64\_Letchworth, as built (1910); Welwyn, as planned (1920)] Images: National Trust

## 2.2 Park Systems (1900-1950)

*Continuing the chronological survey of park systems, this chapter reviews key contributions to civic design by Addams, Geddes and Wright while emphasizing the explicitly collective nature of the park systems established by such dedicated civic designers as Charles Eliot, Jens Jensen, Fredericka and George Kessler, and John Nolan*

### *i. Introduction*

At the turn of the 20<sup>th</sup> century the number and variety of participants engaging in the discourse of parks and park systems increased considerably. Following the high profile success of the 1893 fair in Chicago the team of people that had effectively given form to it shared impulses that later coalesced into the City Beautiful movement – namely Daniel Burnham, Frederick Law Olmsted, Jr. and Charles McKim. In 1902 these three were hired to undertake a comprehensive plan for Washington D.C. that came to be known as the McMillan Plan. This was a grand schemes in the tradition of Italian *magnificenza civica* and French *beaux-arts*, yet somehow articulated along a spectrum from extremely formal and urban to romantic urban parks, a more recent tradition imbued with Olmsted's proto-ecological ruralism.

Olmsted's own thoughts on the matter are well documented, and the strength of his feelings were uncharacteristically strong. Indeed, he considered it nothing less than a 'battle' between the proponents of rural landscapes and urban formalism – or as Olmsted wrote in 1895:

*What I am fighting is a weak, fragmentary, and vacillating compromise between two leading general motives...Now I want you to take my assurance that there is a strenuous fight coming on between those of our side and those who are disposed to revise every body of public land that has been laid out regardfully of natural beauty with the object of transforming it as far as possible into a field of architectural beauty...*<sup>192</sup>

Olmsted here singles out the architect Stanford White, whom he then regarded as 'trying to establish the rule of motives that are at war with those that rule in the original laying out of Brooklyn Park.'

*He distinctly hates those older motives. He would at least, now that so much has been established in the spirit of the original design, get the Commissioner to make the Park an incongruous hybrid between that which was aimed at in this design and that which would be aimed at in such a design as a French architect would have made early in the century, introducing sentimental passages of "Nature" like that attempted at Petit Trianon, but making them secondary, and as interludes of efforts approaching the ruling Versailles character.*<sup>193</sup>

<sup>192</sup> Frederick Law Olmsted, *The Papers of Frederick Law Olmsted: The Last Great Projects, 1890–1895*, ed. David Schuyler and Gregory Kaliss (Baltimore: Johns Hopkins University Press, 2015), 906.

<sup>193</sup> Letter dated March 10, 1895, Olmsted to Roper, *FLO: Frederick Law Olmsted*, 464, fn.84.

Olmsted felt that ‘it was time for those who were essentially of one mind to close ranks against an enemy who was organized, able, proud, and enthusiastic,’<sup>194</sup> writing:

*They have struck down Vaux and are doing their best to kill him in the name of the Lord and of France. They are strong; they are sincere; they are confident; they are mostly cultivated gentlemen to be dealt with courteously, but they are doctrinaires and fanatics and essentially cockneys, with no more knowledge of nor interest in rurality than most men of Parisian training and associations.*<sup>195</sup>

Roper further observes that ‘if [Olmsted] was harsh toward White, he was also prophetic.’

*The unobtrusive mode of park architecture he and Vaux had installed...was on its way out; in its place, for better or worse, the firm of McKim, Mead and White and their likeminded associates fastened on the park conspicuous classicism and imposing monumentality.*<sup>196</sup>

And it is here, in this polemic discourse from 1895, that the poles of ‘civic design’ were established – rural and urban, ecological form and axial formalism. Laura Roper writes that ‘through professional association’ the ‘men of the enemy’ had become Olmsted’s trusted collaborators whom he worked with in ‘hearty, active, friendly cooperation.’<sup>197</sup> There was a simple reason this was possible, according to Olmsted: the existing realities of site constraints.

*At Chicago we sought for a site, first, that would be favorable to formality and architectural gardening. There was none available. Taking the site that in all other respects was most suitable we tried to reconcile a picturesque motive with the formal stateliness that our architectural associates were determined to have in the buildings, and we succeeded to their satisfaction. Here, again...we have managed to reconcile the requirements of...Renaissance buildings with a generally picturesque natural character in the approaches, and in the main landscape features, introducing more or less formal spurs and outworks of architectural motive and purpose. And [they have] accepted our way of doing it, and even, at my request [have] aided in marrying the two motives, extending, modifying and altering the architectural outworks at my suggestion. There has not been the slightest break of harmony between us.*<sup>198</sup>

These same persons remained close collaborators with Olmsted’s team - then Frederick Olmsted Jr, John Charles Olmsted and Charles Eliot, who was made a partner in 1893 - and in the years to come together they produced projects whose artificial means nevertheless effectively recreated, or even

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<sup>194</sup> Roper, 464.

<sup>195</sup> Roper, 464, fn.85.

<sup>196</sup> Roper, 464–65.

<sup>197</sup> Roper, 465.

<sup>198</sup> Roper, 465, fn.86.

created anew, ecologically-functioning habitats. Their colleague horticulturalist Warren Manning's ecological sensibility is evident in his plans, tending toward informal arrangements and designs emphasizing exiting plants through a selective process of pruning and cultivation creating a 'spatial structure and character.'<sup>199</sup> Manning is one of several key figures we will encounter in this chapter as we trace the expanded field of disciplines involved in the park system movement.

The brief but intensely confrontational polemic between these two traditions in park design – formal and informal, urban and rural – soon yielded to a productive and cooperative complementarity in park systems, but the underlying values behind each are important to consider closely as they illuminate issues that are still contentious.

#### *1900 – Los Angeles's Bicycle Highway*

In 1900, Los Angeles had a bicycle highway — and the US was a world leader in bike lanes.<sup>200</sup> The California Cycleway was a nine mile elevated roadway built specifically for bicycles, and was intended to connect the cities of Pasadena and Los Angeles. [*fig1\_cycleway\_plan*] Following approval from California State legislature, construction began in 1899, and the first 2 kilometers (1.3 miles) of the Cycleway opened on January 1, 1900. [*fig2\_cycleway\_photo*] Unlike infrastructure for pedestrians, like Eugene Henard's moving walkway – initially proposed for the 1889 Paris World's Fair, and built for the 1893 Chicago World's Fair – which was impressive, but was prone to breaking down, [*fig3\_moving\_walkway*] the cycleway project was established on the accomplished success of Olmsted and Vaux's Ocean Parkway, Brooklyn's bicycle and pedestrian boulevard connecting Prospect Park and Coney Island. Planned in 1864 and opened in 1880, Ocean Parkway was an early outcome of their initial park system vision for connecting Manhattan and Brooklyn. [*fig4\_postcards*]

In the succinctly titled *Roads Were Not Built for Cars* journalist Carlton Reid presents original research revealing the instrumental 'and largely unrecognized' role that bicyclists played in the development of modern roadways.<sup>201</sup> Emphasizing the shared historic origins of 'modes of transportation that are now seen as worlds apart', Reid introduces readers to the cyclists and cycling advocacy groups that influenced early road improvements, literally paving the way for the automobile.<sup>202</sup> He describes how popular attitudes toward the bicycle changed from it being positively regarded as 'the vehicle of rich transport progressives' in the 1890s to being negatively branded as the "poor man's transport" in the 1920s.<sup>203</sup> Reid shows that this change was the result of a deliberate

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<sup>199</sup> Robin Karson, "Warren H. Manning: Pragmatist in the Wild Garden," in *Nature and Ideology: Natural Garden Design in the Twentieth Century*, ed. Joachim Wolschke-Bulmahn (Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1997), 114.

<sup>200</sup> Joseph Stromberg, "In 1900, Los Angeles Had a Bike Highway — and the US Was a World Leader in Bike Lanes," Vox, June 30, 2015, <http://www.vox.com/2015/6/30/8861327/bike-lanes-history>.

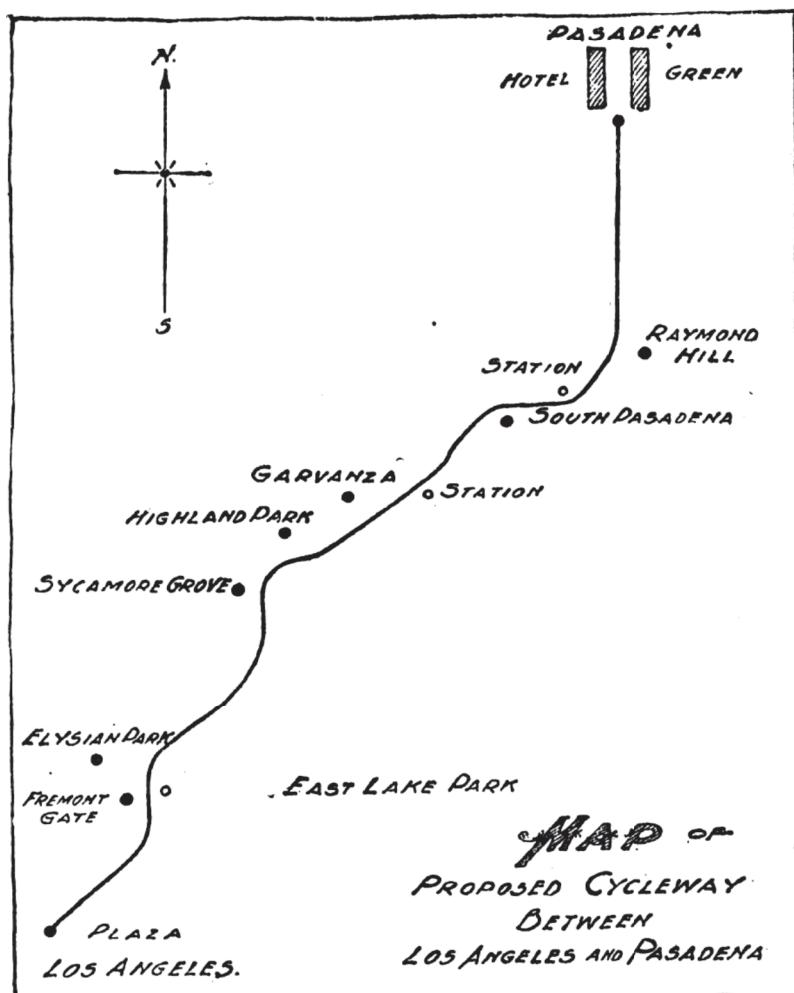
<sup>201</sup> Reid, *Roads Were Not Built for Cars*.

<sup>202</sup> Reid, back cover.

<sup>203</sup> Reid, 7.

campaign for partisan ends, arguing that the contribution of bicycling infrastructure to automobile infrastructure ‘was deliberately downgraded in Britain and America, and officially obliterated in Germany,’ providing such startling examples as the Nazi propaganda department’s letter to German encyclopaedias ‘ordering them to delete [references to] the debt motoring owed’ to a certain Austrian Jewish engineer and to bicycling.<sup>204</sup>

Reid provides similarly vivid detail about the eventual dismantling of Los Angeles’s *California Cycleway*, showing that by the end of the first decade of the century it was put out of business by the Pacific Electric Railway, its right-of-way acquired by the Pasadena Rapid Transit Company. Thus a well-financed venture to build a streetcar line displaced the cycleway, but this too ultimately failed and was displaced by automobile interests, and the *California Cycleway*’s right-of-way finally became part of the Pasadena Freeway.<sup>205</sup> Reid documents a similar sequence of events in cities like Chicago and Portland, and we will encounter this theme with variations in many instances to come.



[fig1\_California Cycleway (1898)] Proposed route. Image: Los Angeles Herald

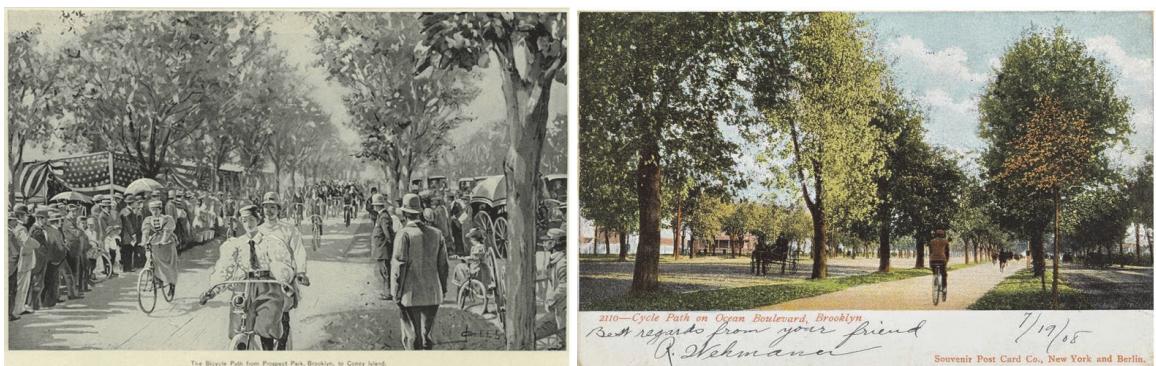
<sup>204</sup> Reid, 3.

<sup>205</sup> Reid, 168–72.



[fig2\_California Cycleway in (1900)] As seen from the Hotel Green. *Image: Pasadena Museum of History*

[fig3\_Chicago Moving Walkway (1894)] *Image: Wikimedia Commons*



[fig4\_Ocean Parkway postcards] (left) 1884, (right) 1908. NYPL

### *1902 – Olmsted and Burnham’s Washington DC Park System*

The McMillan Plan – formally titled *The Report of the Senate Park Commission: The Improvement of the Park System of the District of Columbia* – is an early comprehensive planning document that exerted a powerful influence on the park system movement, and provided a model for the kind of support it was subsequently given by government agencies. Written in 1902 by the interdisciplinary Senate Park Commission – consisting of landscape architect Frederick Law Olmsted Jr., architects Daniel Burnham and Charles McKim, and the sculptor Augustus Saint-Gaudens – it was named after its chairman, Senator James McMillan of Michigan. As we have noted, this is the core of the team that had successfully worked together for the Chicago Columbian Exposition in 1893, and this later project drew heavily on the experience of realizing the Boston park system the Olmsted studio had produced from that year.

The park system plan is distinctly ad-hoc, stitching together a variety of existing parks while ensuring a monumental central axis presenting numerous variations of ‘the trope’, and its overall mode of representation is exemplary of park system ‘territorial figures’. [fig5\_dc\_park\_system] The aerial view likewise provides an early precedent to the kinds of aerial views produced by park systems designers for years to come. [fig6\_mcmillan-plan] Implementation of the original plan continued into the 1920s, and continues to provide the framework for planning in the national capital. [fig7\_dc Regional park system] Among the features of the plan that will factor into our discourse is the Lincoln Memorial and its grand axis in West Potomac Park.

Once again, the role of a sculptor in this work is very relevant. The earliest park system precedents we have referred to, from Bomarzo to Park an der Ilm, sculpture was employed in parks to memorialize the values held by these communities. In Washington, D.C. such sculptural memorials were paired with monumental architecture for similar reasons, and sculptor Augustus Saint-Gaudens was joined in his efforts by others - including polymath Walter Russell, whom we met earlier in the context of his polemic exchange with scientists (see 1.1.1\_Two Way Systems). In his studio above Carnegie Hall Russell prepared his sculpture of The Four Freedoms, commissioned by President Roosevelt for that same West Potomac Park in Washington, D.C.<sup>206</sup> Russell later sculpted Roosevelt’s bust for Hyde Park London, where it still resides, and the Mark Twain Memorial – for which he received a congratulatory letter from Rudyard Kipling, said to be the last letter he had written before his death in 1936.<sup>207</sup>

Other sculptors made contributions expressing values that were more controversial. The park systems movement in the United States took form shortly after the Civil War had ended, and the debate about civic values continued to be played out in the design of these systems. A recent study by the Southern Poverty Law Center shows that over 700 memorial statues commemorating the losing

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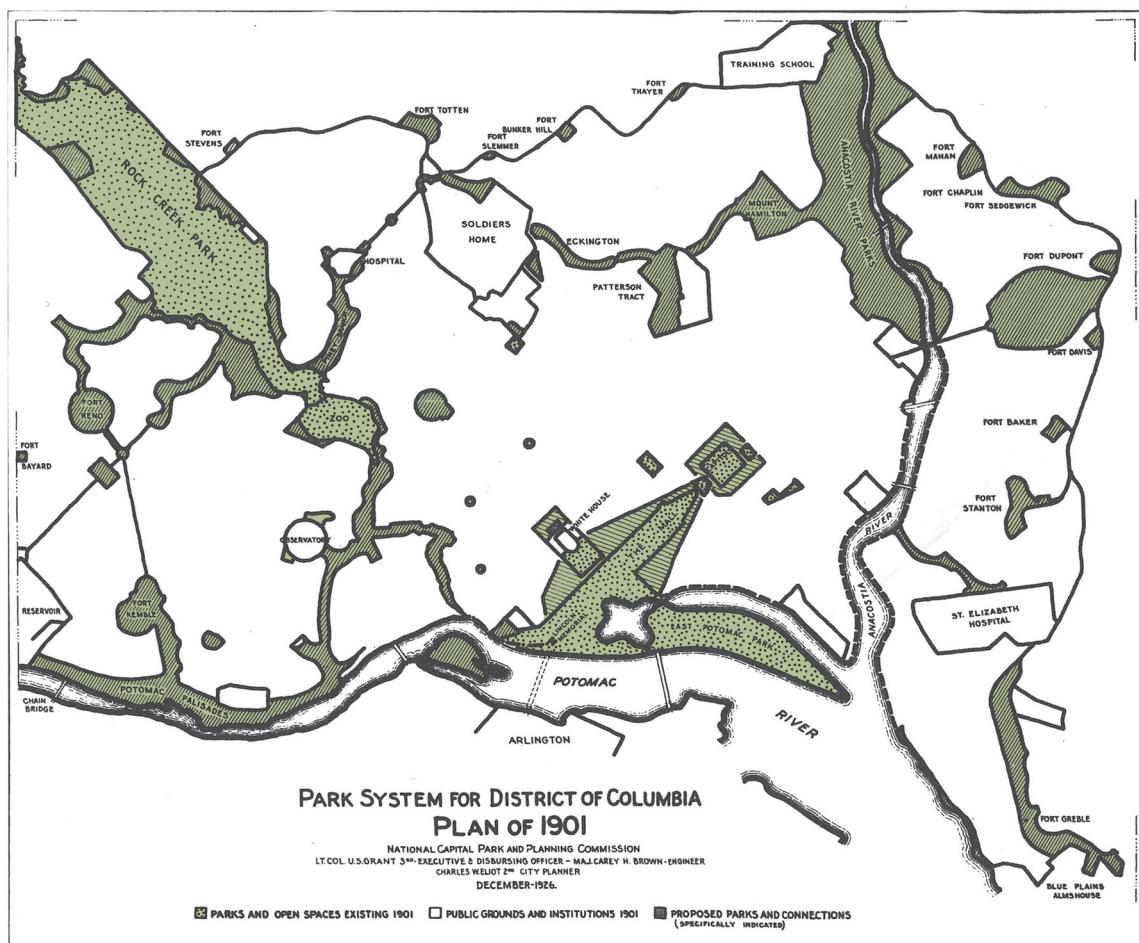
<sup>206</sup> Glenn Clark, *The Man Who Tapped the Secrets of the Universe* (Minneapolis: Macalester Park, 1946), 5.

<sup>207</sup> Clark, 4.

side of the Civil War were erected within parks systems and civic spaces during this period, the majority of these in the years between 1900-1920. [fig8\_timeline] As they write in their report:

*It's difficult to live in the South without being reminded that its states once comprised a renegade nation known as the Confederate States of America. Schools, parks, streets, dams and other public works are named for its generals. Courthouses, capitols and public squares are adorned with resplendent statues of its heroes and towering memorials to the soldiers who died. U.S. military bases bear the names of its leaders. And, speckling the Southern landscape are hundreds of Civil War markers and plaques.<sup>208</sup>*

The contemporary controversy surrounding these monuments highlights their role in park systems, and illustrates the timeliness of this discourse on public space and civic values.<sup>209</sup>



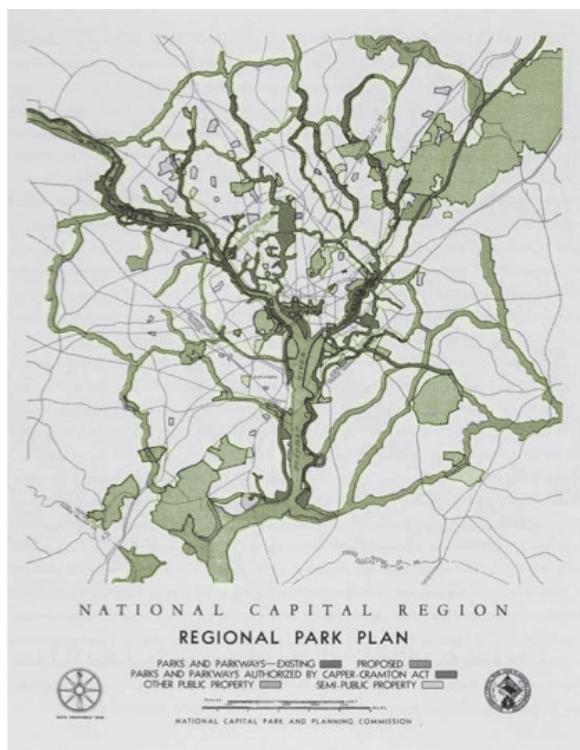
[fig5\_Park System for the District of Columbia, Plan of 1901] NCP

<sup>208</sup> Southern Poverty Law Center, "Whose Heritage? Public Symbols of the Confederacy" (Montgomery, Alabama: Southern Poverty Law Center, April 21, 2016), <https://www.splcenter.org/20160421/whose-heritage-public-symbols-confederacy>.

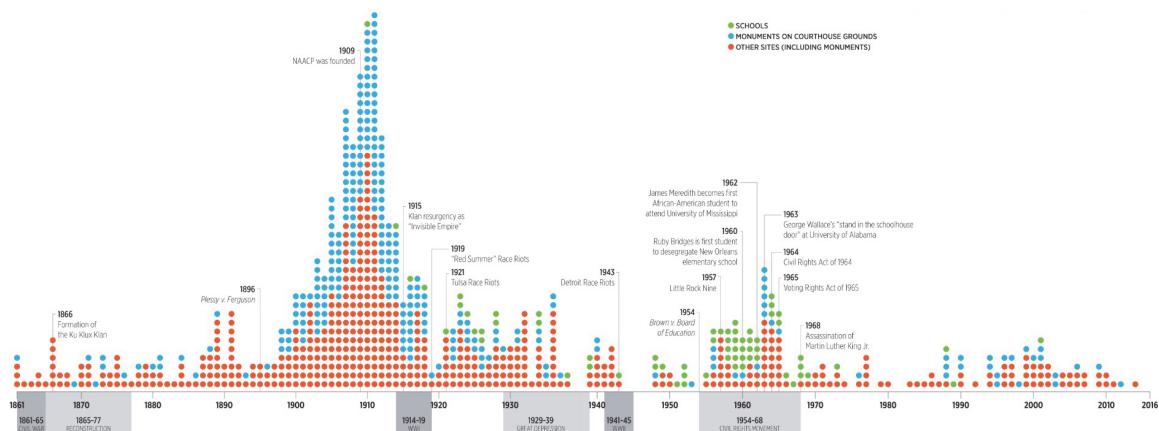
<sup>209</sup> Jess Bidgood, "Confederate Monuments Are Coming Down Across the United States. Here's a List," *The New York Times*, August 16, 2017, sec. U.S., <https://www.nytimes.com/interactive/2017/08/16/us/confederate-monuments-removed.html>.



[fig6\_McMillan-Plan, aerial view (1902)] NCP



[fig7\_Washington DC, *National Capital Regional Park System* (1901-80)] NCP



[fig8\_Confederate Monument Timeline (1865-2015)] Southern Poverty Law Center (2017)

### *1903 – Jensen and Perkins’ Chicago Park Systems*

As we learned in the previous chapter, Chicago’s park system had a head start on other cities. So it was that in the 1890s the city did not need cycle-only ‘side-paths’, as it already had dedicated 40 miles of wide boulevards to bicyclists and pedestrians.<sup>210</sup> These well-surfaced park system boulevards were only for ‘pleasure vehicles’ - horse-drawn wagons were only allowed on dirt roads – and as we have seen, streetcars and trolleys were also kept away from the boulevards, intersecting with them only at strategic intervals. We therefore return to Chicago here to briefly illustrate how those initial park system projects were taken up by subsequent generations. Two figures play a major role in this regard, landscape architect Jens Jensen (1860-1951) and architect Dwight H. Perkins (1867-41).

Jens Jensen was a Danish immigrant from a farming family, and at the age of 24 – following his studies at Tune Agricultural School near Copenhagen and compulsory three-year service in the Prussian army – he immigrated to the United States. After working in Florida and then at Luther College in Decorah, Iowa, Jensen moved to Chicago where he took a job as a laborer in the West Park System, and was soon promoted to project foreman. By 1895 he was appointed superintendent of the 200-acre Olmsted-designed Humboldt Park. Consistent with that city at that moment in history, in the late 1890s the West Park Commission was itself entrenched in political corruption, and although Jensen was fired by a corrupt park board in 1900 – after refusing to participate in political graft – he was soon reinstated, and as Jensen’s responsibilities grew he soon took an active interest in further expanding the park system, and in 1903 he produced the first of many drawings representing his contribution to this intergenerational effort. *[fig9\_jensen\_park\_system]*

The regional nature of the West Park System was explicitly developed when Jensen became its superintendent in 1905. Jensen’s redesign of the system brought a newly regional character to the three original parks and he established the addition of Columbus Park on land subsequently acquired in 1910. In Jensen’s work native plants and regional materials were emphasized, and landscape elements emulated naturalistic features. His exquisite drawing for the further expansion of the West Park System in 1919 highlights his initiative to create a dozen ‘municipal kitchen gardens’, distributed throughout the city and connected with the park system, and carefully threaded between existing railroads, elevated roads and streetcar lines. *[fig10\_jensen\_park\_system\_detail]*

Under the management of the combined Chicago Park District since 1934, the West Parks are listed in the National Register of Historic Places and Columbus Park is now a National Historic Landmark.<sup>211</sup> Such continued appreciation would certainly gratify Jensen, who received similarly admiring praise from his contemporaries. Jane Addams wrote of Jensen’s contributions in her book *Twenty Years at Hull House* (1910), appreciatively referring to him as ‘a member of the Hull-House

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<sup>210</sup> Carlton Reid, “Roads Were Not Built For Cars | Chicago Aims to Be a World-Class Cycling City (You Know, like It Was in the 1890s),” December 21, 2012, <http://www.roadswerenotbuiltforcars.com/chicago1897/>.

<sup>211</sup> “West Park System.”

Men's Club who had been appointed superintendent of Douglas Park', noting that he 'had secured there the first public swimming pool, and his fellow club members were proud of the achievement.'<sup>212</sup> Frank Lloyd Wright also explicitly acknowledged Jensen's park system contributions in an address to the Chicago Woman's Aid Society in 1918, stating:

*In Jens Jensen, the landscape architect, Chicago has a native nature poet who has made the West Park System a delight to the country. He is a true interpreter of the peculiar charm of our prairie landscape. Jens Jensen should be interpreter in chief for Chicago for our wonderful park system; a system that together with our small playgrounds is one of the finest civic-urban features of the world; a recreation ground beyond compare. No small-hearted city, no city except Chicago could have established it or would have made the sacrifices necessary to maintain it. It is not least among the things to this city's everlasting credit.*<sup>213</sup>

In the 1910s Jensen played a major role in building support for ecological preservation efforts that led to the successful preservation of many thousands of acres of ecological habitat. Noteworthy among these successes is the Indiana Dunes State Park, established in 1926 on 2,250 acres of lakeshore and dune habitat, and expanded in 1966 to about 15,000 acres (6,100 hectares) and designated the Indiana Dunes National Lakeshore by an act of US Congress.<sup>214</sup>

Jensen's design efforts were undertaken to advance his own brand of utopian philosophy. Equating *traditional formalism* with anti-democratic values, Jensen believed that the spirit of a democratic people was best encouraged and represented by a rather *informal* approach to regional landscapes – seeing the city and country as counterparts, synoptically. Jens Jensen could not be dismissed as naively utopian – he practiced in an era of rapid social change, and in his work he sought to address the need for equity in the social 'hinterland' of extreme poverty. Chicago's rapid growth was mostly due to an influx of immigrants who came looking for employment in factories and meatpacking establishments, and between 1870 and 1900 the city's population increased five-fold from 300,000 to 1.5 million persons. Living conditions for the new arrivals were wretched, crowded, and filthy, and Jensen was not alone in thinking that re-introducing natural landscapes into the city would provide a palliative for a society seemingly threatening to implode. As we have seen in the last chapter, physicians and associations of medical science also correlated a rise in death rates to the incidence of crowding, and believed that parks would help improve urban sanitary conditions.<sup>215</sup> Jensen saw his role as a landscape architect as fundamentally 'conservative' in the sense that Wright used the term when he later wrote:

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<sup>212</sup> Jane Addams, *Twenty Years at Hull-House, with Autobiographical Notes* (Norwood, Mass.: Norwood Press, 1910), 133.

<sup>213</sup> Frank Lloyd Wright, *Frank Lloyd Wright on Architecture: Selected Writings (1894-1940)*, ed. Frederick Gutheim (New York: Grosset & Dunlap, 1941), 90.

<sup>214</sup> U.S. National Park Service, "Indiana Dunes National Lakeshore," accessed August 4, 2017, <https://www.nps.gov/indu/index.htm>.

<sup>215</sup> Cheryl Kent, "Review of A Force of Nature: The Life and Work of Jens Jensen," *Journal of the Society of Architectural Historians* 63, no. 2 (2004): 226, <https://doi.org/10.2307/4127956>.

*We - the people - must retrieve this environment of ours already so heavily mortgaged. Both the life of town and country now waste each other. Accelerated by the exaggerated motor car, these interchanges and mortgages are forged by the rail men, the pole-and-wire men, advertising men; the realtor, the so-called "developer"- all defacing life. Call these conservative? Conservative should mean faithful maintenance at all costs of the free ideals for the sake of which our forefathers gave to every man in the country a stake in himself, as most glorious of all his privileges. Men truly "conservative" would not tolerate overwhelming violations of life...Who then is "conservative" in democracy? Would he not be the man with a sense of himself as at one with truth, seeing truth as his own love of the beautiful? "Conservative" then as he looks into nature from this inner self of his and his aims to be true to his own spirit - this is the conservative, normal to America. In this spirit beauty will ever be dear to him....*<sup>216</sup>

As illustrating the ecological basis of the emerging paradigm, this conservative ideal was shared by Jensen's park system colleagues on both sides of the Atlantic - by Wright and his colleagues, as well as Geddes and his associates. For Jensen and his contemporaries the act of conservation became the first act in bringing utopia, as an expression of *genius loci*, to life. Noteworthy among these contemporaries was architect and city planner Dwight H. Perkins. Perkins was raised in Chicago, studied at MIT, and returned to Chicago to work with Burnham and Root from 1889-93. Daniel Burnham recognized Perkins' unusual talent and encouraged his protégé when he established his independent practice in 1894, helping him to secure his first commission for the Wisconsin Normal School in Stevens Point. That year he also received the commission to design a new building for the Steinway Piano company, and after completion of the building Perkins took up tenancy in the tower at Steinway Hall. Frank Lloyd Wright soon joined him there, and along with several other designers they shared administrative staff and maintained a degree of collaboration in their work.<sup>217</sup>

In 1904 Perkins submitted the *Report of the Special Park Commission to the City Council of Chicago on the subject of a Metropolitan Park System* (1904) 'for the purpose of making suggestions for such increase of park facilities as the study of conditions would show to be desirable at the present time and in the near future.'<sup>218</sup> Perkins' report included several fold-out plans that vividly illustrate the scope of his ambition in comparison with the park system as it existed then. [fig11\_perkins\_park\_system\_expansion] This detailed report was well received and enabled the further expansion of the urban park system, and like Jens Jensen's contributions, Perkins' recommendations for the preservation of existing habitats is credited with igniting a forest preservation campaign that led to the creation of another park system altogether - the Cook County Forest Preserve system. Perkins' son, architect

<sup>216</sup> Frank Lloyd Wright, Frank Lloyd Wright Collected Writings Vol.4: 1939-1949, ed. Bruce Brooks Pfeiffer, vol. 4 (Random House Incorporated, 1995), 201-03.

<sup>217</sup> Wilbert R. Hasbrouck, *The Chicago Architectural Club: Prelude to the Modern* (Monacelli Press, 2005), 163.

<sup>218</sup> Dwight Heald Perkins, "Report of the Special Park Commission to the City Council of Chicago on the Subject of a Metropolitan Park System" (Chicago, 1904), 15.

Lawrence Perkins, has stated that ‘his real monument in his own eyes was the forest preserve system.’<sup>219</sup> Jensen contributed his own ‘Report of the Landscape Architect’ to Perkins’ report, where he emphasizes their common vision for these forest preserves:

*They may and should form natural gateways to the city. They are monumental in character and should embellish the high ways that enter our great metropolis. The forest park, great in area, rich in vegetation, will ultimately become a great source of knowledge for the student of silviculture and forestry and will assist in making Chicago an educational center in such lines.*<sup>220</sup>

Many of the proposals made in Perkins’ report, including Jensen’s recommendations, were incorporated into Daniel Burnham’s *Plan of Chicago* (1909), and the wide and enduring international recognition of this plan ensured that Jensen and Perkins’ schemes were broadly disseminated. [fig12\_burnham Regional Park System] The deep and multifaceted nature of *The Chicago Plan* ensured its lasting significance, as Chicago historian Kristen Schaffer has written in *Fabric of City Life: The Social Agenda in Burnham’s Draft of The Plan of Chicago*, her introductory essay to a 1993 edition of the book:

*The plan of Chicago is an extraordinary and complex document, one that cannot be simply or easily introduced... One could observe, for instance, the way in which the plan orients the city towards its waterfront, giving over this land to public recreational use and integrating the lakeshore drive and parks with the city’s street pattern and park system. Or one could locate the plan within the context of the ‘city beautiful,’ an early city planning movement that focused on the physical appearance of the city and included such issues as sanitation and street paving. One could remark on the arguably modern aspects of the plan: its regional scope, the perceived interrelation of park, city street, suburban roadway, transit, and rail systems, and the articulation of the city as an organism.*<sup>221</sup>

Given that the plan is very well researched it will not be the subject of in depth study here, but we will refer to it as we encounter relevant facets of it in this and the following chapter. Of immediate relevance here is the relationship *The Chicago Plan*’s social agenda and what Geddes described as his own ‘biosocial agenda’.<sup>222</sup> This ecological turn of thought, at the basis of Geddes’s thinking, was further stimulated by the insightful and socially active park system contributions made by Dwight Perkins and Jens Jensen to *The Chicago Plan*.

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<sup>219</sup> Alison Davis, “Interview with Lawrence Perkins,” Public Broadcasting System, 1999, <https://www.pbs.org/wbgriffin/perkins1.htm>.

<sup>220</sup> Perkins, “Report of the Special Park Commission to the City Council of Chicago on the Subject of a Metropolitan Park System,” 104.

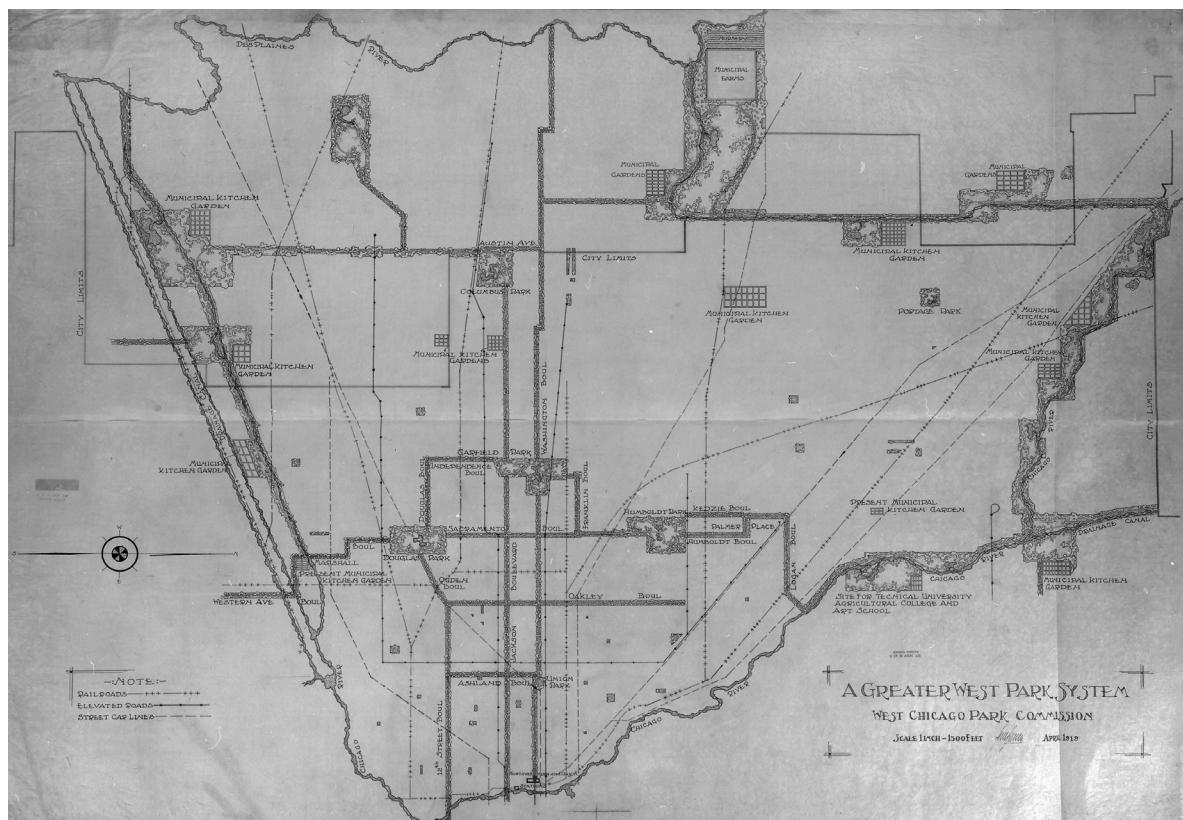
<sup>221</sup> Kristen Schaffer, “Fabric of City Life: The Social Agenda in Burnham’s Draft of The Plan of Chicago,” in *Plan of Chicago* (Princeton, N.J.: Princeton Architectural Press, 1993), v.

<sup>222</sup> Chris Renwick, “The Practice of Spencerian Science: Patrick Geddes’s Biosocial Program (1876-99),” *Isis Journal of Evolutionary Science* 100, no. 1 (March 2009): 36–57.

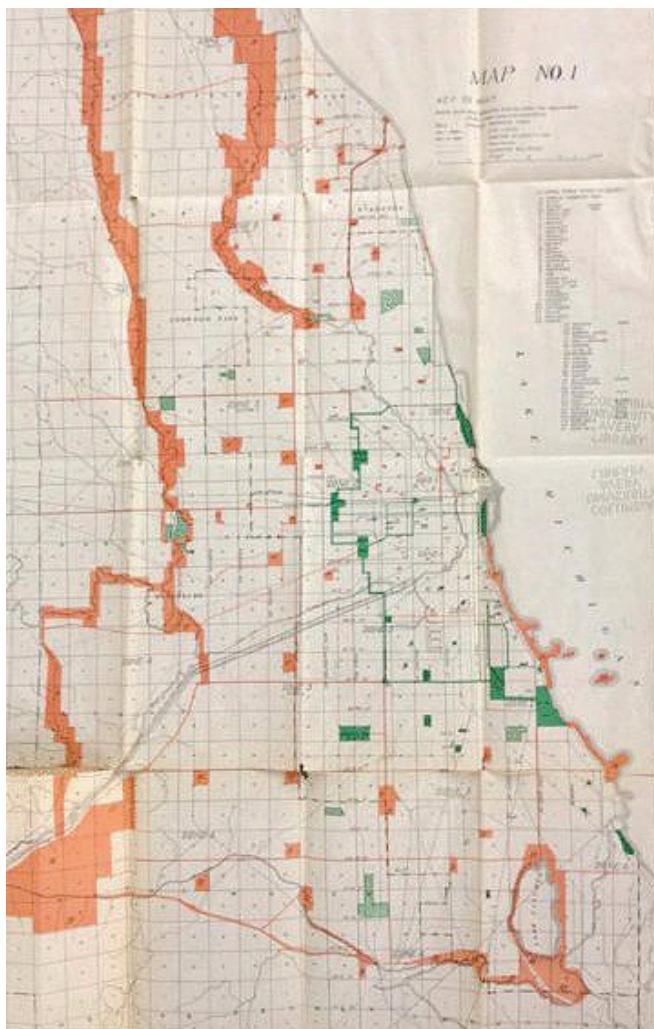
Following their shared work on the plan, Perkins continued his working relationships with Burnham, and worked even more closely with Jensen. Together Perkins and Jensen steadily increased the area and civic value of Chicago's park systems, arguing for the urgency of the parks and preserves and building on the work of their predecessors by connecting the need for parks with Chicago's difficult living conditions, maintaining a direct correlation of the provision of parks with reduced rates of death, disease, and crime, and with increased health, education and social mobility.



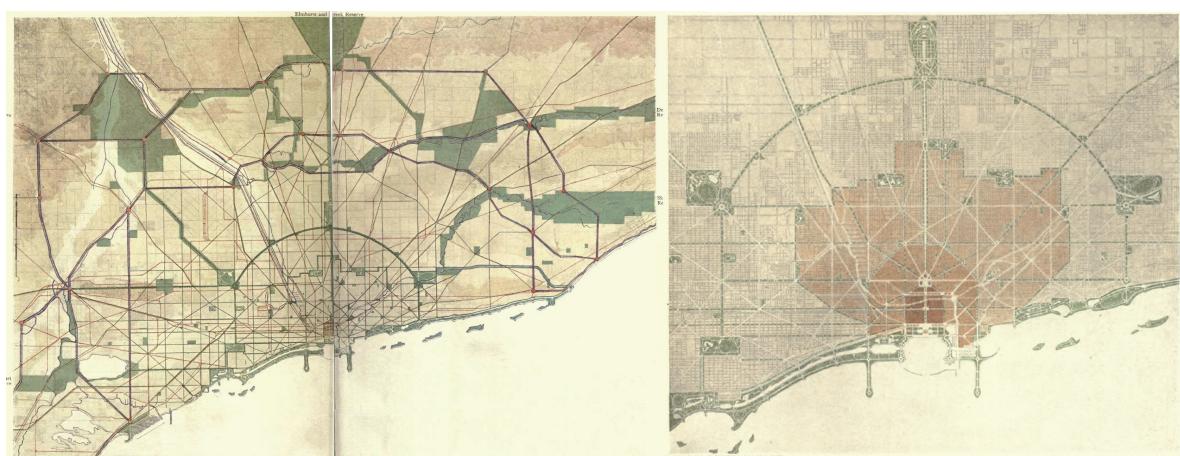
[fig9\_Jens Jensen, *Proposed System of Forest Parks and Country Pleasure Roads*, (1903)] JJA BL002318



[fig10\_Jens Jensen\_A Greater West Park System, Chicago (1919)] JJA HS15334



[fig11\_Dwight Perkins, *Proposed Metropolitan Park System Expansion* (1904)] After Jensen, areas in green indicate the existing park system, orange indicates proposed park system expansion. *Image: Avery Library*



[fig12\_Olmsted and Burnham, et.al. Chicago (1909)] Regional plan (left) and City plan (right) captioned: Plan of the City, Showing the General System of Boulevards and Parks Existing and Proposed. The boulevards are planned to form a continuous system of circulation; the parks are related closely to the boulevard system, and are located, wherever possible, in connection with them. *LOC*

1904 – Crawford's American Park Systems

The same year Perkins and Jensen had delivered their report to the City Council of Chicago, their likeminded colleague Andrew Wright Crawford (1873-1929) was preparing a report for Philadelphia that was to prove to be a uniquely influential document. Crawford was the Secretary of the Executive Committee of the Allied Organizations of Philadelphia, an organization of diverse civic associations in the city, and it was in this capacity that he prepared his *American Park Systems: Report of the Philadelphia Allied Organizations* (1904). The report is remarkably concise, merely sixty pages in length, consisting mainly of a status report and side by side comparative plans of the park systems then existing in 30 North American cities: Boston, Kansas City, New York, Staten Island, Essex and Hudson Counties in New Jersey, the Palisades, Chicago, Milwaukee, Providence, Portland, Seattle, San Francisco, Manila (Philippines, a U.S. territory), New Orleans, Ottawa (Canada), Baltimore, Harrisburg, Memphis, Omaha, Toledo, Louisville, Cleveland, St. Louis, St. Paul, Minneapolis, Hartford, Buffalo, and Washington D.C. [fig13\_crawford\_ american park systems] Crawford addresses the association's Executive Committee with his introduction:

*This [park system] movement, which has secured marked headway in the last few years, has produced notable results. Park systems in some cities are almost complete, in others they are half finished. In yet others, like our own, where parks however fine in themselves are inadequate for the needs of a city that has far outgrown them, the work of adding well-chosen areas and of connecting the scattered parks into a system has just begun... While the mere fact that other cities are acquiring such systems may not prove that Philadelphia should do so, it remains true that the reasons that impelled such action apply with equal force to this city.*<sup>223</sup>

Throughout the report Crawford carefully elucidates common organizational concerns while highlighting the regional conditions that make one system distinct from another, and the steady rhythm of encountering page after page of park system 'territorial figures' exerts a strangely insistent and forceful effect on one's sensibility. It is easy to understand how Crawford's graphic method had the effect of convincing the skeptical of the value of park systems. As Crawford writes at the conclusion of the report:

*In 1880 Philadelphia led the cities of America in park area. In a quarter of a century we have fallen far behind. The cities that we have cited, and we do not claim that the list is complete, show that the Philadelphia Allied Organizations are but abreast of the times in urging the acquisition for park purposes of the naturally beautiful valleys and wooded areas in the suburbs of the city, and the construction of parkways between them, in order to secure a Comprehensive Park System.*<sup>224</sup>

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<sup>223</sup> Andrew Wright Crawford, *American Park Systems: Report of the Philadelphia Allied Organizations*. (Harrisburg, Pa.: Mount Pleasant Press, J. H. McFarland Company, 1905), 3.

<sup>224</sup> Crawford, 54.

The value of this document in illustrating the similarities and differences between various park systems is testified to by the innumerable references made to it in reports by subsequent designers, and by the several editions made of the work subsequently.<sup>225</sup> One of the most striking testaments to the importance of Crawford's report was the book it prompted to be written in response by Parisian landscape architect Jean-Claude Nicolas Forestier (1861-1930), *Grandes Villes et Systems de Parcs*, published in 1906.<sup>226</sup> [fig14\_systems de parcs] Forestier had trained with Hausmann's collaborator Jean-Charles Alphand and helped to design the park setting for the Eiffel Tower. By the time he wrote *Grandes Villes* his official role in the city was that of both 'Inspecteur des eaux et forêts' and 'Conservateur des promenades de Paris.'<sup>227</sup> Forestier's book generally maintains the structure and format of Crawford's *American Park Systems*, and he refers to park systems as 'the North American model' (modèle Nord-Américain).

While Forestier's work paralleled the return to *formalism* characteristic of the polemic disciplinary discourse in which Olmsted advocated for *informalism*, he eschewed either extreme and drew from the two primary poles as they were then recognized in France: the *paysager* and the *régulier*.<sup>228</sup> Historian Dorothée Imbert has observed that 'Forestier derived the morphology of his designs from a consideration of climate and its corresponding plant palette rather than from strict adaptation to function,'<sup>229</sup> and goes on to note:

*He dismissed peremptory stands regarding any single design vocabulary; a design language, he argued, ought to be derived only from the context of a particular project... Whether in a small theoretical garden project or a large public park, Forestier thoroughly exploited - as complementary elements - the relationship between the architectonic skeleton and the poetic aspect of each plant. With a knowledge that encompassed technology and horticulture as well as landscape composition, he was able to bridge the gap between the detail-oriented sensitivity of a jardinier-artiste and the expansive scale of the land engineer and city planner. Forestier defined himself as a man of cities, which in his view - without irony - meant a man who appreciated open air and trees. The garden or park functioned as a suture to the architectural blocks; the promenade, on the other hand, served as a link between the knots of the urban fabric.*<sup>230</sup>

<sup>225</sup> Andrew Wright Crawford, *The Development of Park Systems in American Cities*, Publications of the American Academy of Political and Social Science ;No. 451 (Philadelphia: The American Academy of Political and Social Science, 1905), <https://catalog.hathitrust.org/Record/008304890>; Andrew Wright Crawford, "The Development of Park Systems in American Cities," ed. Emory Johnson, *City Life & Progress: Annals of the American Academy of Political and Social Science*, Annals of the American Academy of Political and Social Science ;v. 25, no. 2, xxv, no. 2 (1905): 16–32; Crawford, *American Park Systems: Report of the Philadelphia Allied Organizations*.

<sup>226</sup> Jean Claude Nicolas Forestier, *Grandes Villes et Systèmes de Parcs*, 1st ed. (Paris: Hachette, 1906); The book was reissued with critical commentary in: Jean Claude Nicolas Forestier et al., *Grandes villes et systèmes de parcs: suivi de deux mémoires sur les villes impériales du Maroc et sur Buenos Aires* (Editions Norma, 1997).

<sup>227</sup> Forestier, *Grandes Villes et Systèmes de Parcs*, 3.

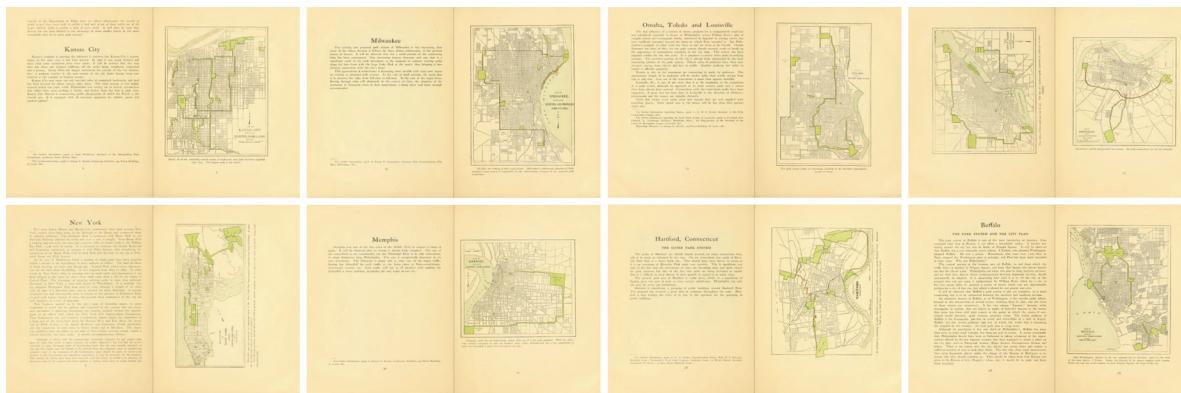
<sup>228</sup> Dorothee Imbert, "J.C.N. Forestier - Plants and Planning," in *The Modernist Garden in France* (New Haven: Yale University Press, 1993), 11.

<sup>229</sup> Imbert, 12.

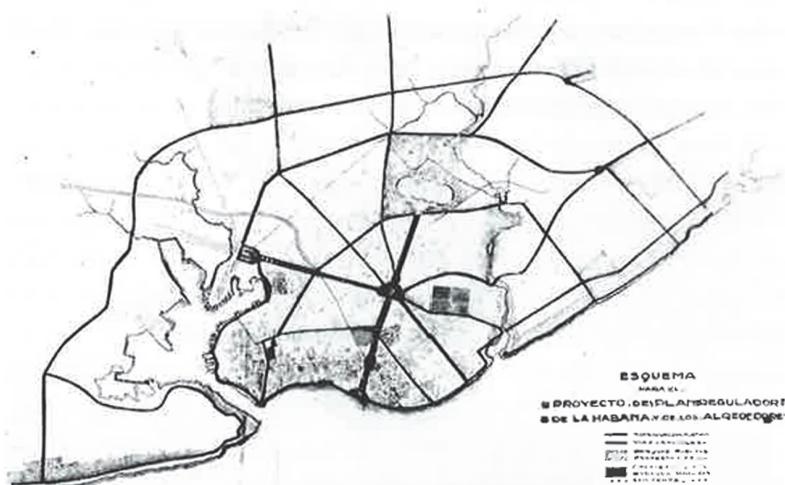
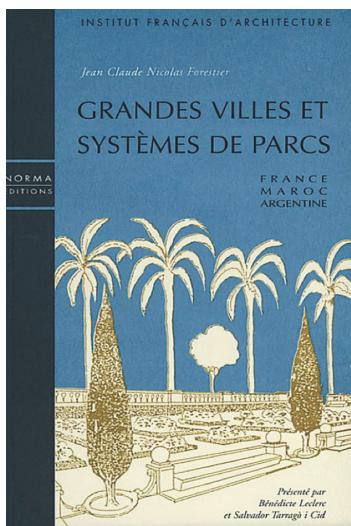
<sup>230</sup> Imbert, 12.

In addition to his official responsibilities as Paris's *Inspector of Waters and Forests* and *Conservator of Park Systems*, Forestier maintained an independent practice in which he developed and contributed to park systems in Buenos Aires, New York, Lisbon, Mexico City, and Santo Domingo. His 1929 park system design for Havana, Cuba, proved particularly prescient as following the sanctions imposed on the country by the United States in 1961, the city currently grows over 99% of the vegetables consumed in the city within Forestier's park system.<sup>231</sup>

Like his American counterpart Andrew Wright Crawford, Forestier was an effective and early European proponent of park system planning on a regional scale, arguing that such regional park systems ought to be national programs. And he was far seeing enough to anticipate their international ecological significance as a program involving neighboring countries and crossing political boundaries.<sup>232</sup>



[fig13\_Crawford, *American Park Systems: Report of the Philadelphia Allied Organizations* (1904)] LOC



[fig14\_Forestier, *Grand Villes et Systèmes de Parcs* (1906)] (right) Park System for Havana (1929)

<sup>231</sup> "Cuba Sanctions," United States Department of the Treasury, 2017, <https://www.treasury.gov/resource-center/sanctions/Programs/Pages/cuba.aspx>.

<sup>232</sup> Forestier, *Grandes Villes et Systèmes de Parcs*, 24; as cited in: Sonja Dümpelmann, "The Park International: Park System Planning as an International Phenomenon at the Beginning of the Twentieth Century," *German Historical Institute*, no. 37 (Fall 2005): 79.

### *1907 – The Kessler’s Park System for Cincinnati*

Fredericka Antoinette Louisa Kessler (1863-1951) and her brother George Edward Kessler (1862-1923) were German immigrants who had studied botany, forestry, and design at a private school for landscape gardeners at the Belvedere in Weimar under *Hofgärtner* Armin von Sckell and *Garteninspector* Julius Hartwig – direct descendants of Goethe’s collaborators there of the same surnames in the 1770s.<sup>233</sup> We have already addressed how Olmsted helped to launch the Kessler’s careers in Kansas City following their correspondence in 1882 (to which Olmsted had responded after receiving no less than eight letters from the young siblings) and have introduced several of the Kessler’s collaborators, having noted how their early, rather heavy-handed work differed from the elegance of that produced by the Olmsted studio. (see 2.1\_Public Parks)

By the time the Kessler’s and their team designed the Cincinnati park system in 1907 they were capable of producing world-class parks and drawings. The 1907 plan labeled ‘System of Parks and Parkways’ is among the most beautiful drawings of the entire genre of park systems – its vivid green territorial figure a complex amalgam of site-responsive ecological corridors and rigorously beaux-arts axiality. *[fig15\_kessler\_cincinnati]* The aerial view – recalling the McMillan plan aerial view of Washington, D.C. – is equally stunning, even in black and white, and it is to be hoped that the original color painting will someday come to light. *[fig16\_cincinnati\_view]* The scope of the project’s ambition is made apparent by the plan of existing parks included in the Cincinnati design report.<sup>234</sup> *[fig17\_existing\_parks]* Before entering into the detail of the project we will take note of several of the Kessler’s collaborators. Among the team they assembled for this project three are particularly noteworthy.

Charles Mulford Robinson (1869–1917) began as a journalist, but having established himself as an architectural theorist became the first professor of Civic Design at University of Illinois, Urbana-Champaign, which at the time was only one of two American Civic Design programs - the other being at Harvard, a program founded by Frederick Law Olmsted, Jr. in 1900, the same year he founded the landscape architecture program there).<sup>235</sup> Robinson had written a popular illustrated description of Chicago’s World Columbian Exposition in 1893, and in 1901 published what may be the first guide to city planning, titled *The Improvement of Towns and Cities: or, the Practical Basis for Civic Aesthetics*.<sup>236</sup> Robinson went on to design a number of first-rate park systems: in 1909, he obtained a municipal

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<sup>233</sup> Kurt Culbertson, “George Edward Kessler: Landscape Architect of the American Renaissance,” in *Midwestern Landscape Architecture*, ed. William H. Tishler (University of Illinois Press, 2000), 100.

<sup>234</sup> Fredericka A. L. Kessler and George E. Kessler, “A Park System for the City of Cincinnati: Report of the Park Commission of Cincinnati to the Honorable Board of Public Service of the City of Cincinnati” (Cincinnati: Cincinnati Board of Public Service, 1907).

<sup>235</sup> Tom Turner, *Garden History Reference Encyclopedia: Historic Books on Garden Design and Landscape Architecture* (London: Gardeners Visit Press, 2012), 3526.

<sup>236</sup> Charles Mulford Robinson, *The Improvement of Towns and Cities; or, the Practical Basis of Civic Esthetics* (New York: G.P. Putnam’s Sons, 1901).

contract and created a park system plan for Fort Wayne, Indiana for which he later brought the Kessler team on board; *[fig18\_kessler\_fort wayne]* in 1913 he designed an elegant park system for Council Bluffs, Iowa, and in 1914 Robinson was hired by the city of Saint Joseph, Missouri as a design consultant for a park system that was to become the 26 mile Saint Joseph Park and Parkway System – a hiking and biking parkway ribbon that was listed in the National Register of Historic Places in 1994.

Eda August Sutermeister (1878-1929) was ‘one of [America’s] first woman landscape gardeners.’<sup>237</sup> She was also the daughter of Joanna Louise Leibniz, descended from the same German polymath Gottfried Leibniz (1646-1716) who had developed calculus independently of Isaac Newton in 1675.<sup>238</sup> There are two sets of initials on the Kessler’s 1907 park system drawing, of which the last is Sutermeister’s ‘E.A.S.’ Having studied at the University of Missouri and the Saint Louis Botanical Gardens she joined the Kessler’s in designing the Saint Louis World’s Fair of 1904. Knowledge of Sutermeister’s role, like Fredericka Kessler’s, is currently very limited and further hampered by the implicitly masculine bias of the era. Additional research about her is required. We do know that following George Kessler’s death in 1923 the firm disbanded, and Sutermeister joined the Kansas City landscape architects Hare & Hare, a firm Charles Mulford Robinson was also closely associated with after Kessler’s death.

Hare & Hare merits mention in this connection as one of several pioneering firms who helped establish the profession of landscape architecture in the United States, and with Sutermeister and Robinson they later designed and built many park systems, notably including third generation additions to the Kansas City park system, as well as the Nelson-Atkins Museum of Art and the master plan for the Country Club District there, and the planned-in-advance city of Longview, Washington. The practice was founded in 1910 by the father-and-son team of Sidney J. Hare and S. Herbert Hare, in Kansas City, Missouri. Herbert studied landscape planning at Harvard University with Olmsted’s associates, but his father Sidney was self-taught – he acquired his skills while working for the city engineer’s office and as a superintendent of the Kessler-designed, Olmsted-enabled park system.<sup>239</sup>

The second set of initials on the Cincinnati park system territorial figure, following Sutermeister’s ‘E.A.S.’ are ‘W.I.A.’ – these belong to William I. Ayres (1876-1966), a steady collaborator at Kessler’s studio until it disbanded. He too went on to spend the rest of his career ‘preparing plans for park [system] and boulevard improvements’ in Kansas City. Upon his retirement in 1956 at the age of eighty years, the Kansas City Times published an illustrated feature titled ‘In 45 Years in Park Department, Illness Kept Him Off Only Once’ in which they quote him as saying he

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<sup>237</sup> Editor, “Eda A. Sutermeister Dies: A Long Illness Is Fatal to the Widely Known Landscape Gardener,” *Kansas City Star*, April 14, 1929.

<sup>238</sup> Gottfried Wilhelm Freiherr von Leibniz, *The Early Mathematical Manuscripts of Leibniz: Translated from the Latin Texts Published by Carl Immanuel Gerhardt with Critical and Historical Notes* (Open Court, 1920), 93.

<sup>239</sup> “Hare & Hare | The Cultural Landscape Foundation,” accessed October 25, 2017, <https://tclf.org/pioneer/hare-hare>.

*...has enjoyed his work because he was taking part in furthering the park and boulevard system planned by the late George E. Kessler, landscape architect and [his predecessor as] engineer for the park board.*<sup>240</sup>

It is necessary again to point out that it was the practice of George's sister and Weimar-trained landscape collaborator Fredericka not to be credited for her role, which is understood to have been central to the designs.<sup>241</sup> The drawings she is known to have worked on are unsigned and simply attributed "George E. Kessler & Company, Landscape Architects." More research into her role is needed. Meanwhile, the other name that does appear on this drawing, just under 'George E. Kessler & Company, Landscape Architects,' was that of Henry Wright (1878-1936). His credit is not merely given with initials, either, but his full name in capital letters just under Kessler's, including the two cities in which he was then based, Saint Louis and Kansas City. Wright also personally created the incredibly beautiful panoramic aerial view painting of the Cincinnati park system in 1907 described above, an image that opened the Cincinnati report and was explicitly paired with the territorial figure drawing, which closed the report. Wright had also worked with Sutermeister and the Kessler team to design the Louisiana Purchase Exposition in St. Louis, Missouri in 1902.

As we noted in the last chapter Wright was also an influential advocate of Ebenezer Howard's *Garden City* ideas whose Quaker upbringing informed his ambitions for community design. Having participated with the Kessler's from the Saint Louis *Louisiana Purchase Exposition* in 1902, when he was only 23 years old, he left their employ soon after the Cincinnati project and went on to become one of the founding members of the Regional Planning Association of America in 1923, along with Lewis Mumford, Benton MacKaye, and Clarence Stein.<sup>242</sup> The Regional Planning Association of America, or RPAA, was a relatively short-lived organization, but in the course of the decade of its existence it exerted an outsized influence and prompted the creation of numerous like-minded groups.<sup>243</sup> The association brought together the intellectual achievements of a range of disciplines such as the sociology of Charles Horton Cooley, the economic analysis of Thorstein Veblen, and the urban approaches of Geddes and Howard, as well as the educational philosophy of John Dewey – all of whom directly participated in the organization.<sup>244</sup> It is through his collaborative work with Stein that

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<sup>240</sup> "In 45 Years in Park Department, Illness Kept Him Off Only Once," *The Kansas City Times*, Feb 22, 1956.

<sup>241</sup> Ann McFerrin, "Archives of Parks and Recreation," Kansas City Municipality, n. This understanding is derived from correspondence that is just now being processed, and was communicated to my by the Kansas City archivist Ann McFerrin. I intend to pursue this further as soon as I have obtained the digitized material. <http://kcmo.gov/parks/>.

<sup>242</sup> Cynthia L. Girling and Kenneth I. Helphand, *Yard, Street, Park: The Design of Suburban Open Space* (John Wiley & Sons, 1996), 54.

<sup>243</sup> Andrew A. Meyers, "Invisible Cities: Lewis Mumford, Thomas Adams, and the Invention of the Regional City, 1925-1929," *Business and Economic History*, no. 27 (1998): 293.

<sup>244</sup> Kermit C. Parsons, "Collaborative Genius: The Regional Planning Association of America," *Journal of the American Planning Association* 60, no. 4 (1994): 467.

Wright is generally known now, including their projects at Sunnyside Gardens in the borough of Queens in New York City (from 1923), the Radburn community in Fair Lawn, New Jersey (from 1928), and Chatham Village in Pittsburgh, Pennsylvania (from 1930).<sup>245</sup> In practical terms, Stein was responsible for the administration of the RPA organization and managed its agenda, MacKaye developed its first project, the Appalachian Trail, and together Mumford, MacKaye, Stein and Wright developed its ‘regional city idea.’<sup>246</sup> *[fig19\_appalachian\_trail]* This important precedent is a trail system that follows the geological morphology of the Appalachian Mountains. As a territorial figure of a regional park system, it is interesting to note that it is effectively the counter-reading of the public works proposed for to the U.S. Senate in 1807 by then Secretary of the Treasury, Albert Gallatin. These public works were predicated on canal building, ensuring water transportation throughout the region, and once again railroad interests foiled implementation of the scheme.<sup>247</sup>

Like his regionalist RPAA colleagues, Wright hoped that science and technology could be redirected toward ecological ends that were expressive of region’s natural and cultural legacies.<sup>248</sup> While looking to a progressive future in which these values were given spatial and temporal continuity, he also expressed ambivalence about the impact of the automobile on cities – a sentiment clearly conveyed by Stein when, following Wright’s death, he later wrote of their work together as their attempt “to answer the enigma ‘How to live with the auto’: or, if you will, ‘How to live in spite of it’...” by addressing “these difficulties with a radical revision of [the] relation of houses, roads, paths, gardens, parks, blocks and local neighborhoods.”<sup>249</sup>

Such skepticism of the automobile was likely informed by Wright’s early experience working with Kessler in Cincinnati. A key component of the 1907 plan was a Central Parkway to replace the existing Central Canal, the section and perspective view of which were drawn by Wright. *[fig20\_canal\_comparison]* The traffic shown in the drawings include pedestrians and horse-drawn carriages, and, tellingly, a single automobile. Henry Ford had only recently produced and sold his first automobiles in 1903, known alternatively as the ‘Fordmobile’ or Model AC, and the first mass-produced automobile, the Model T, went into production in 1908 – a year after Wright’s drawing.<sup>250</sup>

The compelling backstory of this aspect of the project began in 1815 when shipping investors initially proposed to canalize and extend a modest river that was a tributary of the great Ohio River, on

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<sup>245</sup> Mark Luccarelli, *Lewis Mumford and the Ecological Region: The Politics of Planning* (Guilford Press, 1997), 61–70.

<sup>246</sup> Parsons, “Collaborative Genius: The Regional Planning Association of America,” 462.

<sup>247</sup> Roger G. Kennedy, *Hidden Cities*, 23–49.

<sup>248</sup> Oliver J. Dinius and Angela Vergara, *Company Towns in the Americas: Landscape, Power, and Working-Class Communities* (University of Georgia Press, 2011), 75.

<sup>249</sup> Clarence S. Stein, “Toward New Towns for America,” *The Town Planning Review* 20, no. 3 (October 1949): 203–82. Note: This important publication was the official journal of the Civic Design program in Liverpool, a program that will be addressed in following section.

<sup>250</sup> Robert Lacey, *Ford, the Men and the Machine* (Boston: Little, Brown and Company, 1986), 22.

which the city had then only recently been founded.<sup>251</sup> When completed in the 1820s the canal was used to transport goods and people from the Great Lakes to the Ohio River, then on to the Mississippi River.<sup>252</sup> The now-navigable canal facilitated growth of the city, and by the 1850s it had become the center of the city's premier entertainment district.<sup>253</sup> Cincinnati historian Allen J. Singer writes that the canal was 'the city hotspot, full of colorful immigrants, Italianate architecture, and restaurants serving rich German cuisine – and many, many taverns and saloons.'<sup>254</sup> The lucrative shipping business, coupled with the popularity of the district, soon prompted the Cincinnati Street Railway Company undertake efforts on multiple fronts to displace the canal with their railways, and to 'drive the canal out of business.'<sup>255</sup>

One of these efforts involved initiating a polemic in the local press that intended to sway public opinion, and the September 27, 1884 issue of Cincinnati's weekly magazine, *The Graphic*, ran an illustrated article advocating for the transformation of the canal into an unobstructed railroad route covered with a broad elevated boulevard. [*fig21\_dream of the graphic*] The proposal met with public resistance, prompting the railway company to turn to defaming the waterway as unsanitary and its advocates as sentimental and old-fashioned, resulting in the magazine's bold statement: "The changes which time brings in all things may cause many heartaches, but the heartaches of those who cling so fondly to the dead old ditch can in no degree compensate for the malarial headaches of hundreds who must suffer from its consequences."<sup>256</sup>

This polemic discourse, played out in the pages of *The Graphic*, had a significant impact on the attitudes of city government officials – and in 1888 Cincinnati began adopting the railroad company's streetcars, which soon became the primary mode of public transportation in the city.<sup>257</sup> Public support for retaining the canal remained high, however, and was likely bolstered further by public resistance to the railroad company's aggressive tactics – but by the time Wright and the Kessler's were working on their plans some thirty years later, the railroad's pre-eminence had become an accomplished fact, leading to the closure or abandonment of canals throughout the region.<sup>258</sup> As historian William Cronon has written:

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<sup>251</sup> Allen J. Singer, *The Cincinnati Subway: History of Rapid Transit* (Mount Pleasant, South Carolina: Arcadia Publishing, 2003), 20.

<sup>252</sup> Ferencz Aurelius Pulszky and Theresa Pulszky, *White, Red, Black: Sketches of American Society in the United States* (New York: Redfield, 1853), 297.

<sup>253</sup> Zane L. Miller and Bruce Tucker, *Changing Plans for America's Inner Cities: Cincinnati's Over-the-Rhine and Twentieth-Century Urbanism*, Urban Life and Urban Landscape Series (Columbus: Ohio State, 1998), 1–3.

<sup>254</sup> Singer, *The Cincinnati Subway*, 21.

<sup>255</sup> Singer, 17.

<sup>256</sup> Singer, 18.

<sup>257</sup> Singer, 18–19.

<sup>258</sup> William Cronon, "Rails and Water," in *Nature's Metropolis: Chicago and the Great West* (New York: W. W. Norton & Company, 1992), 55–93.

*Water routes would help shape the railroads – by competing with them, by sharing business with them, not least by influencing where they would be built – but the last quarter of the [nineteenth] century saw these waterways become ever more marginal to the city's economy.*<sup>259</sup>

By 1907, although the railroads had been situated on other sites – namely along other riverways in the city – the neighborhood surrounding the canal had fallen into decline, and public enthusiasm for the canal had likewise diminished. Following the advice of city engineer C.N. Danenhower, city officials instructed the Kessler design team that a new central boulevard was something the city then needed more than it needed a canal.<sup>260</sup> This direct instruction is reflected in the drawings made by Henry Wright.

But the railroad interests hadn't finished yet, and in 1910 – having obtained the support of Cincinnati's new mayor – they again renewed the idea of an underground transit system.<sup>261</sup> Eventually six million dollars were allocated for the project, but construction was delayed because of the First World War, and then post-war inflation effectively doubled construction costs, further delaying the beginning of construction until 1920. But it was a changing world, and the railroad interests found that they were being confronted by the rapidly growing influence, and affluence, of automobile interests: just as they had previously displaced the canal business, they soon found themselves similarly displaced. Financial backing was effectively withdrawn, and when bonds ran out in 1927 construction came to a halt, and the project was cancelled indefinitely in 1928 – having built seven miles of railway tunnels in which no track was ever laid.<sup>262</sup> Numerous attempts were made in subsequent years to reinvigorate the project, but all these failed, and today few of the city's inhabitants are aware of the abandoned rapid transit tunnels under their feet – now recognized as the largest abandoned subway system in the nation.<sup>263</sup>

The example we've considered from this project – a single boulevard in a citywide park system, and its transformation from river to canal, and from canal to road – has its origins in the Native American culture who had regarded the river as sacred, and had erected monumental earthworks along its banks. Fortunately some of these remaining mounds had been saved in the city's two earliest parks – Eden Park and Burnet Woods – and were actively protected by these park system designers. In fact most Midwestern cities are established on such historic sites, and in many cases they were looted and deliberately destroyed.

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<sup>259</sup> William Cronon, *Nature's Metropolis: Chicago and the Great West*, 1st ed. (New York: W. W. Norton & Company, 1992), 70.

<sup>260</sup> Singer, *The Cincinnati Subway*, 19, 25.

<sup>261</sup> Singer, 19–20.

<sup>262</sup> Cliff Radel, "Life under the City: Subway Legend Has Never Left the Station," *Cincinnati Enquirer*, May 24, 2003.

<sup>263</sup> Radel, 27.

In Cincinnati, too, the majority of these Native American earthworks were erased. As early as 1794, Colonel Winthrop Sargent, Secretary and Governor pro tem of the Northwest Territory, had sent a report on Cincinnati's burial mounds to the American Philosophical Society. William Henry Harrison, who arrived as a young officer at Fort Washington, participated in a survey of these mounds, accompanying General "Mad" Anthony Wayne. Years later, in an 1837 address to the Historical and Philosophical Society of Ohio, he recalled:

*When I first saw the upper plain on which that city stands, it was literally covered with low lines of embankments. I had the honor to attend General Wayne two years afterwards in an excursion to examine them. We were employed a greater part of a day, in August, 1793, in doing so. The number and variety of figures in which these lines were drawn, was almost endless, and...almost covered the plain.*<sup>264</sup>

Harrison's description of the entire flat plain of Cincinnati's river basin as overspread with prehistoric earthworks, including walls and mounds, is all that now remains of the majority of these monuments. Although the area was then heavily wooded, the earliest settlers of Cincinnati also recognized them, and one of the first streets in the city was thus called Mound Street. In that part of the city, however, now only Mound Street's name remains. *[fig22\_cincinnati\_mounds]* If this is shocking, it must be acknowledged that all of this is perfectly consistent with the U.S. Government's policy to eradicate Native American communities, and to erase the memory of their pre-eminence on the continent. It is as with the systematic destruction of untold millions of buffalo, an effort promoted and engaged in by government at the explicit suggestion of Thomas Malthus, who had advised the U.S. Government that the best way to keep the Indian population in check is to control their food supply, writing:

*...the ignorance and indolence of the improvident savage...[requires that] the number of wild animals within his reach...must necessarily limit the number of his society. The tribes of hunters, like beasts of prey, whom they resemble in their mode of subsistence, will consequently be...scattered over the surface of the earth.*<sup>265</sup>

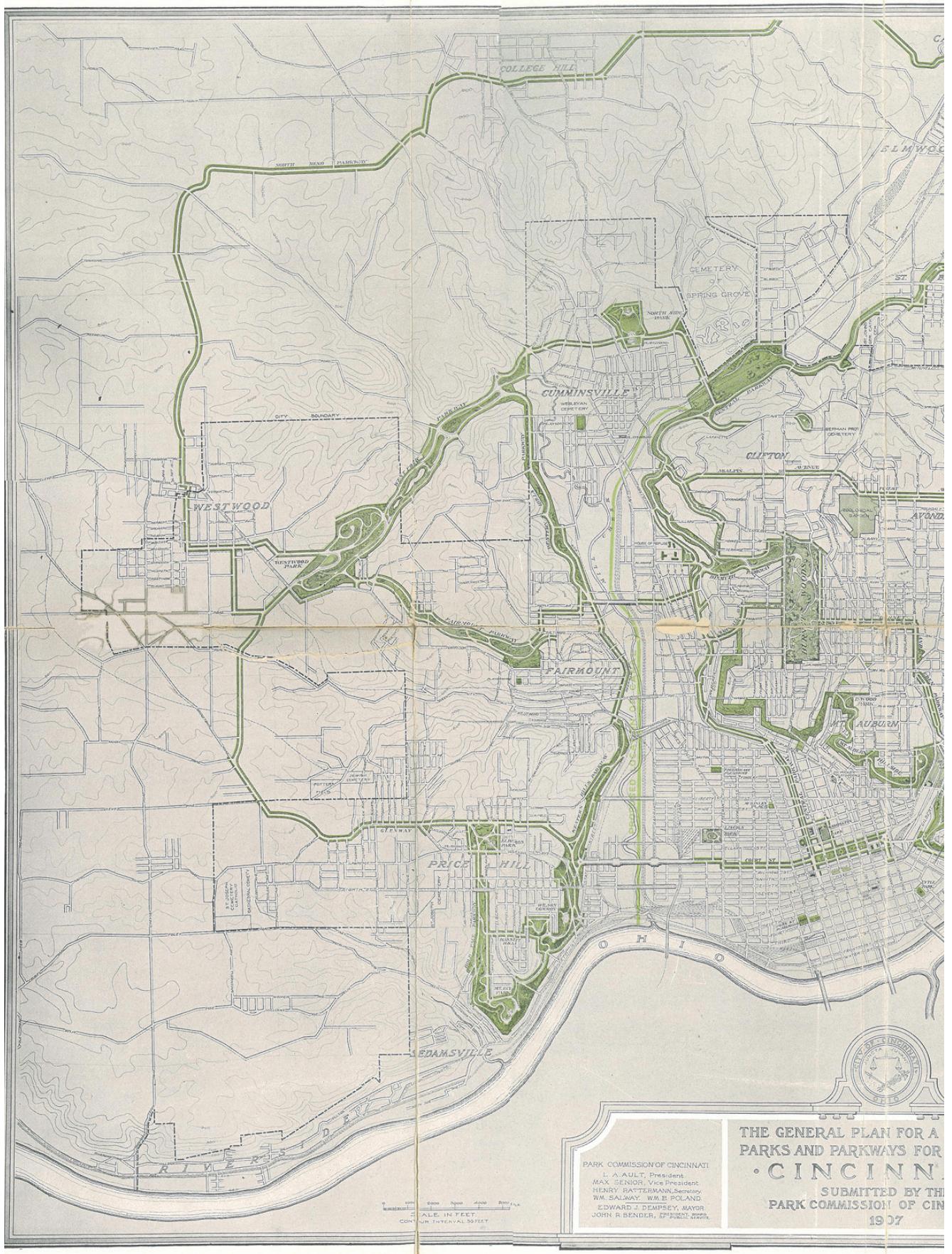
This policy was enforced – yet in terms of cultural sophistication, it is interesting to note once again that as on other continents many of these earthworks were had the formal layout of 'the trope'. As evidence of an unrecognized, or, rather, deliberately unacknowledged cultural sophistication, the excavation of the largest mound on Mound Street prior to its destruction yielded a remarkable artifact known now as 'The Cincinnati Tablet', a wooden panel with an image of unknown significance. Nevertheless, it is a suggestive image, as it features precisely 'the trope's' formal qualities. *[fig23\_cincinnati\_tablet]*

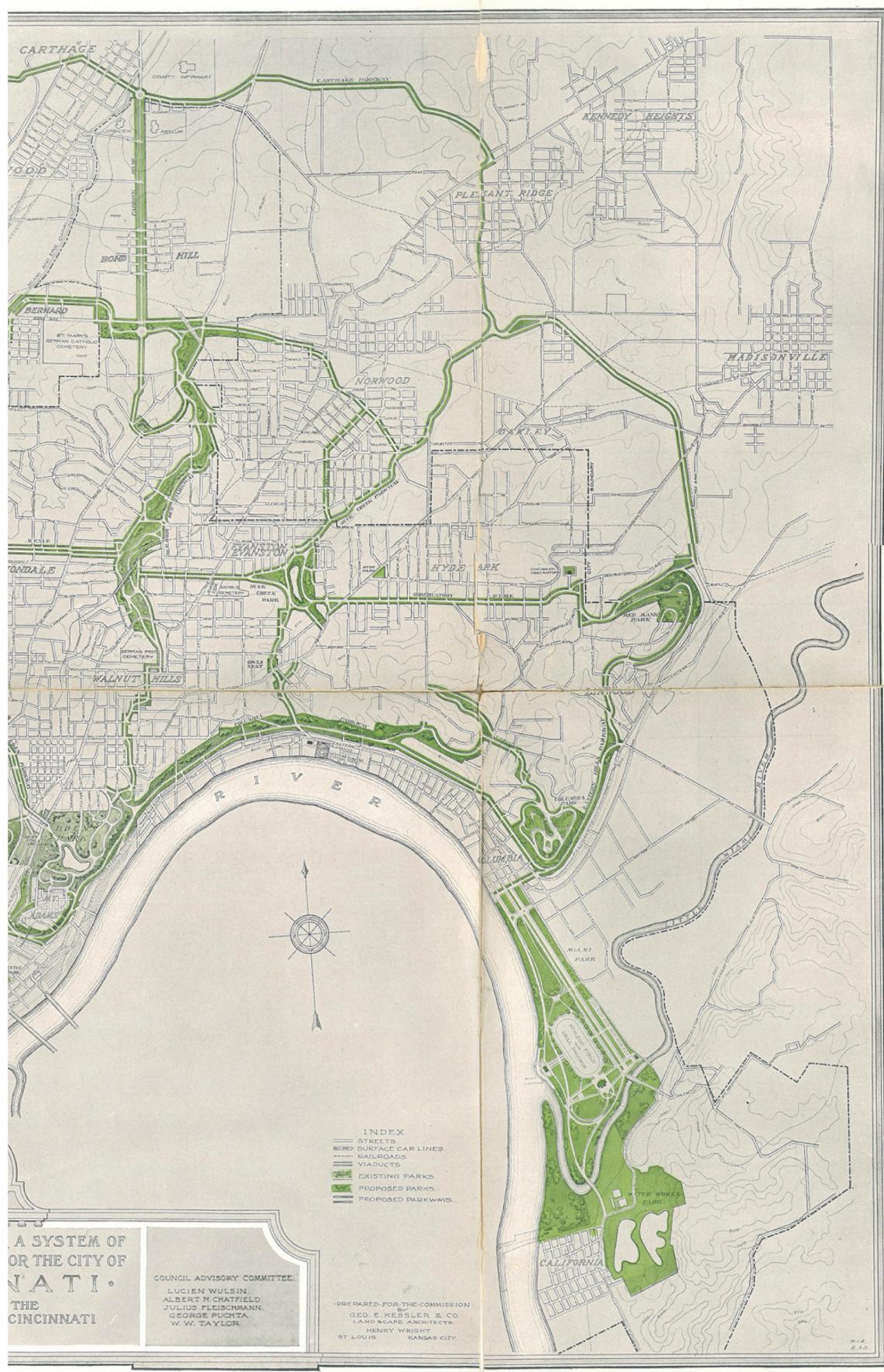
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<sup>264</sup> Greg Hand, "The Long-Lost Prehistoric Mounds of Downtown Cincinnati," *Cincinnati Magazine*, 2016, <http://www.cincinnatimagazine.com/citywiseblog/the-long-lost-prehistoric-mounds-of-downtown-cincinnati/>.

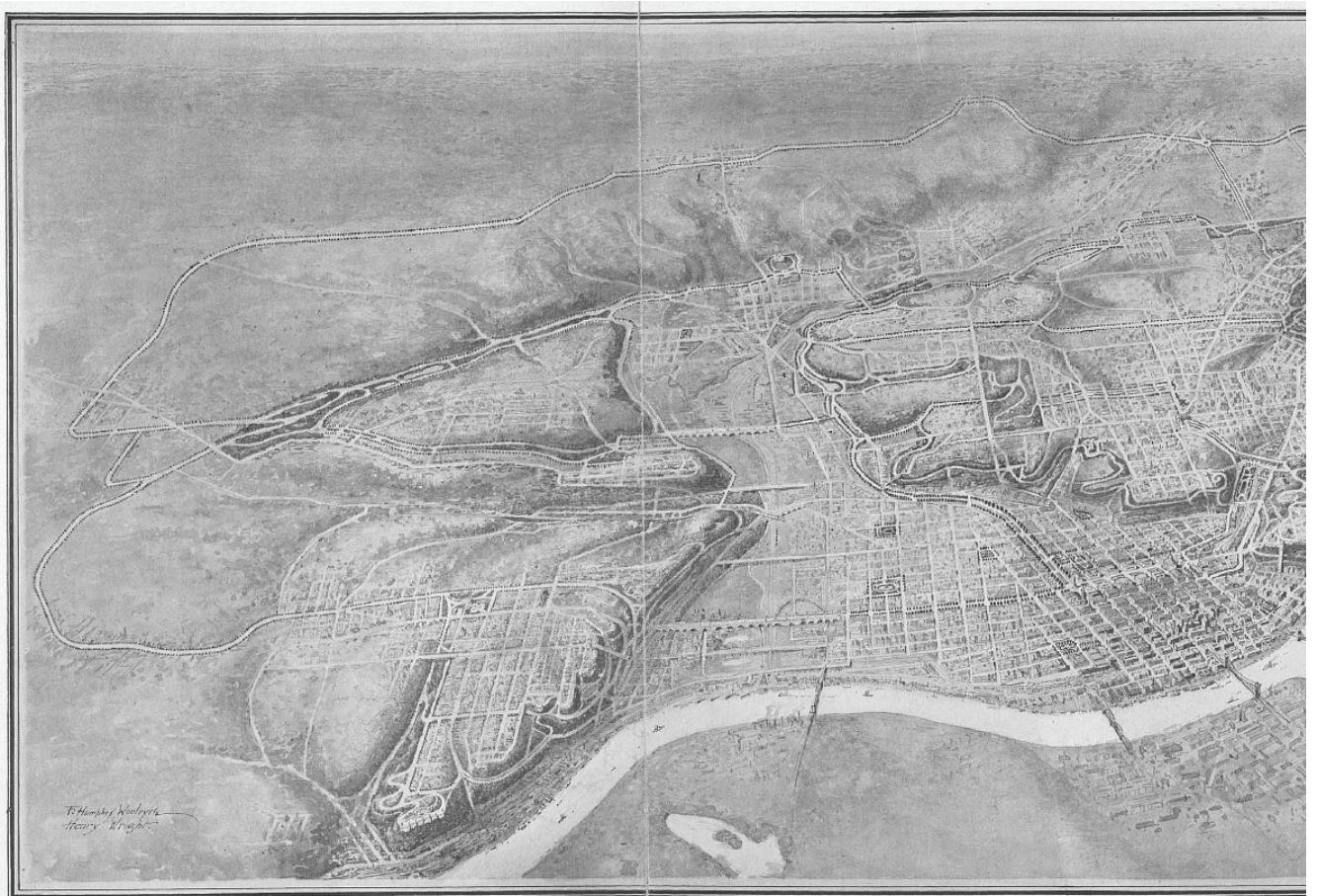
<sup>265</sup> Thomas Robert Malthus, *An Essay on the Principle of Population*, 1st ed. (London: Joseph Johnson, 1798), 26.



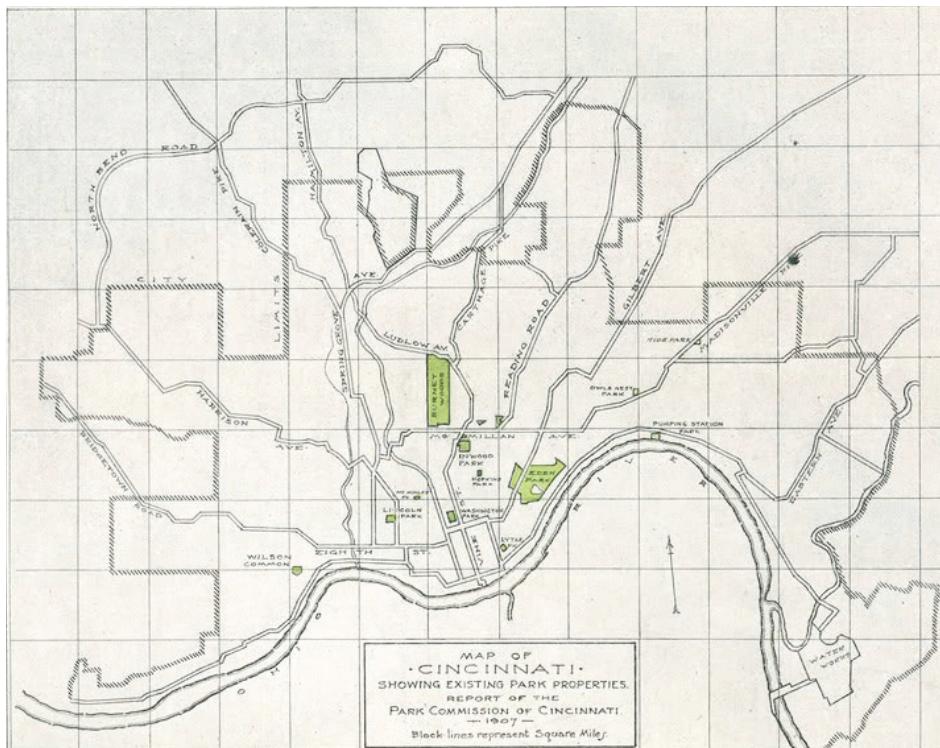




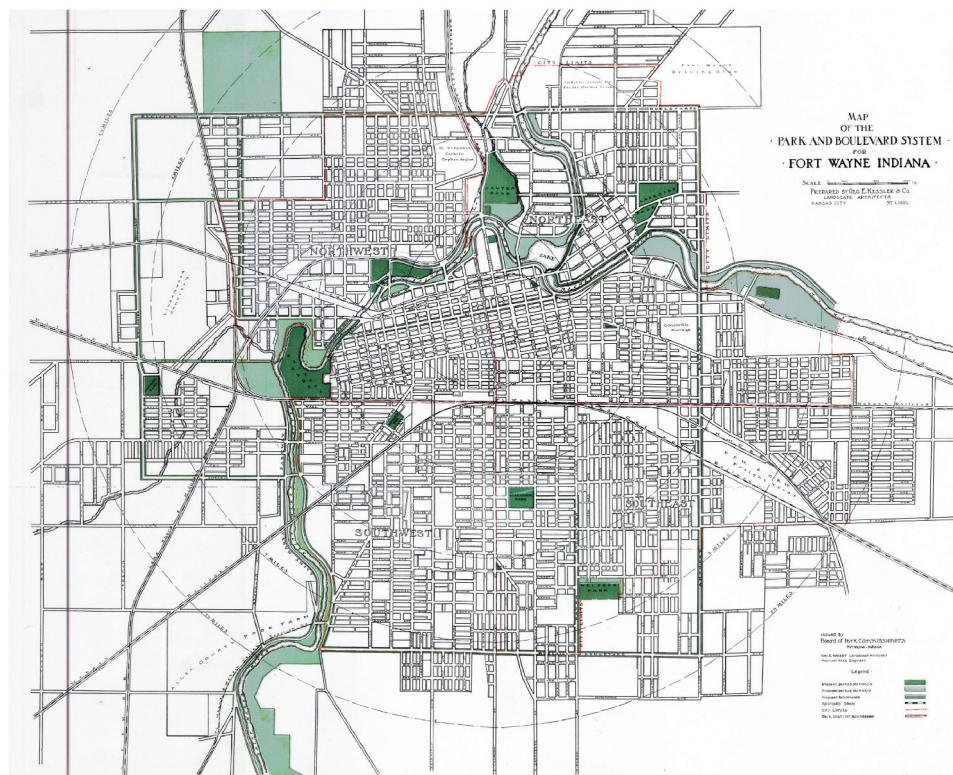
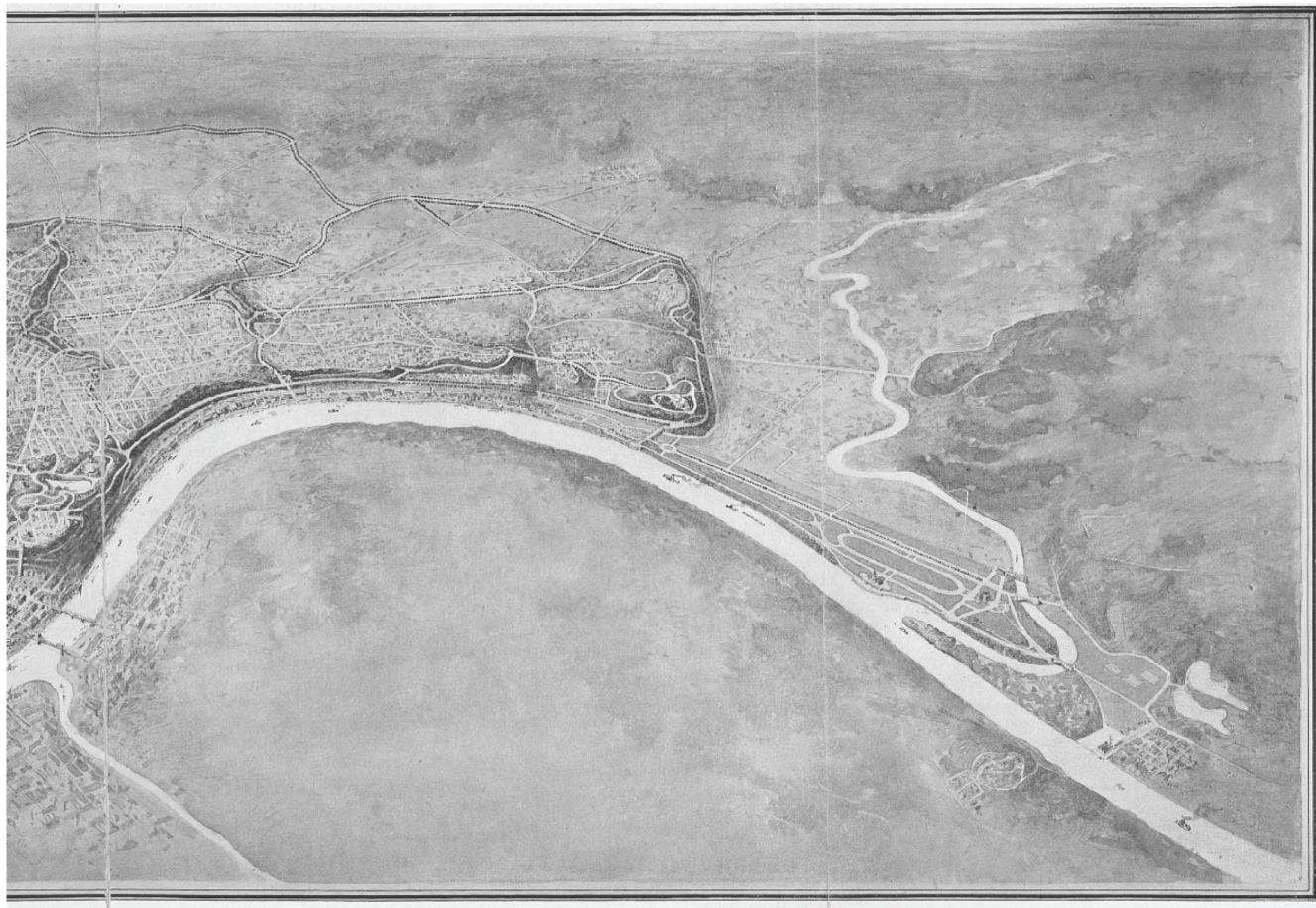
[fig15\_Kessler and Co. The General Plan for a System of Parks and Parkways for the City of Cincinnati (1907)] LOC



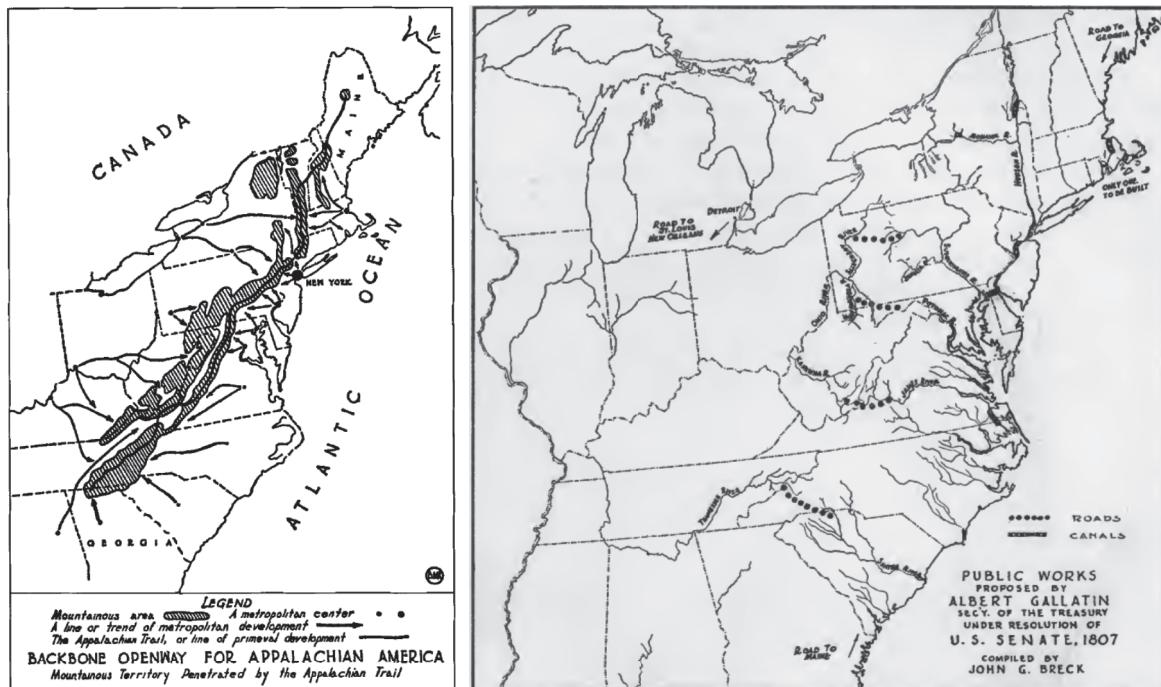
[fig16\_Bird's-Eye View of Cincinnati, showing proposed park system (1907)] LOC



[fig17\_Existing Parks in Cincinnati (1907)] LOC

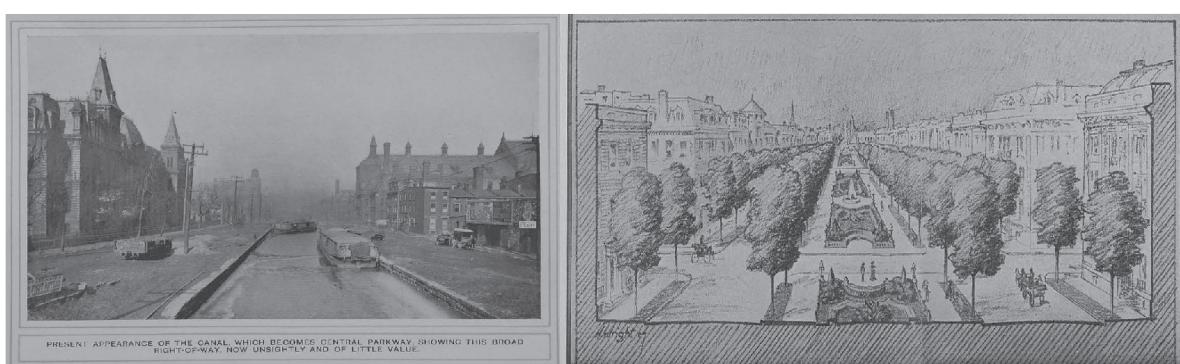


[fig18\_Kessler and Co., Park and Boulevard System, Fort Wayne, Indiana (1911)] KCP

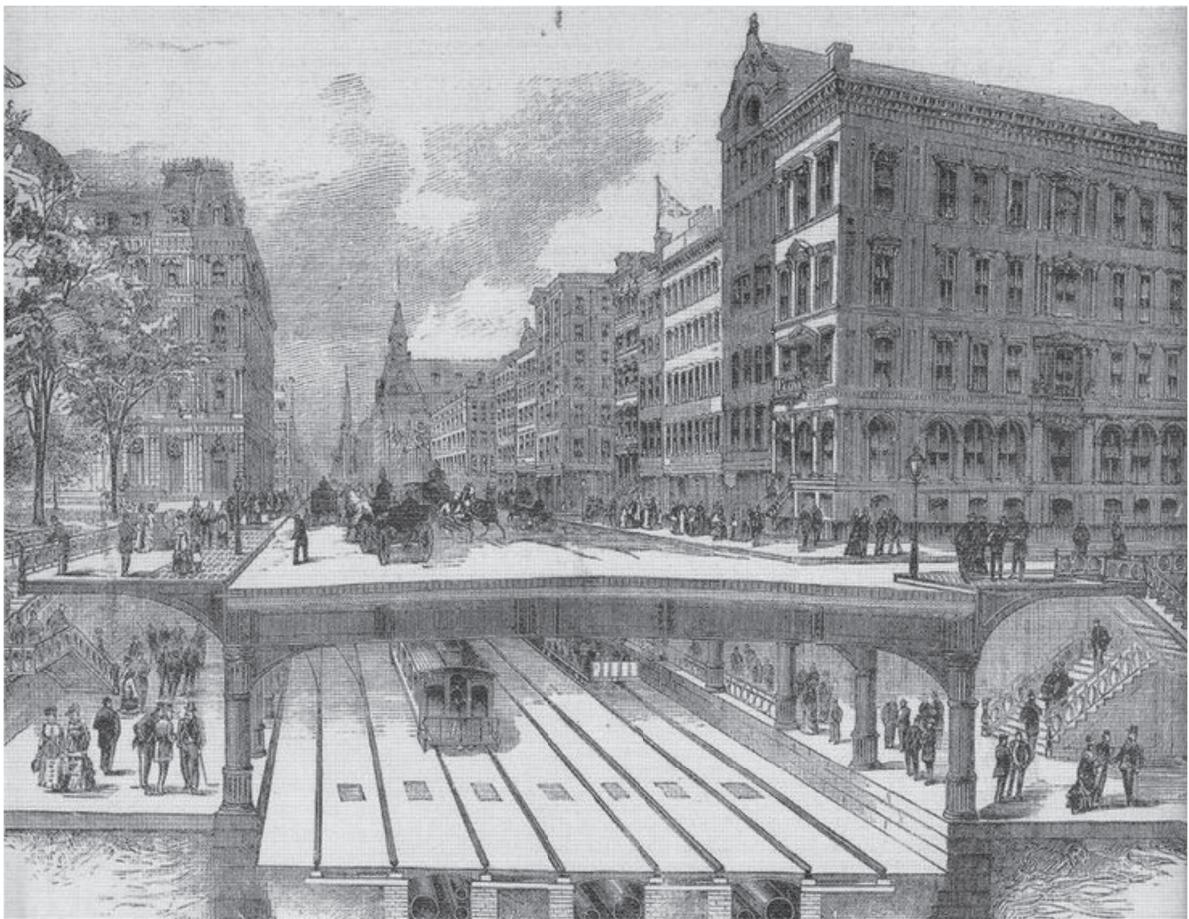


[fig19 *A Project in Regional Planning: Backbone Openway for Appalachian America, 1923*]

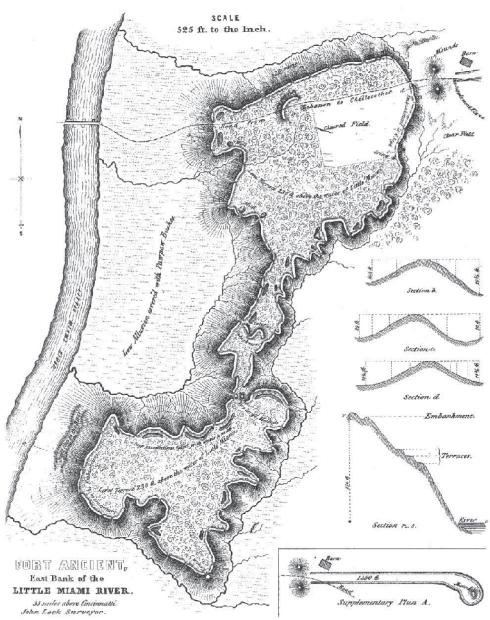
Benton MacKaye's original drawing of the Appalachian Trail proposal shows its relationship to metropolitan growth centers. (right) Public Works proposed by Albert Gallatin (1807) LOC



[fig20\_Cincinnati Central Canal (1907)] (left) Present Appearance of the Canal, which becomes a Central Parkway, showing this broad right-of-way, now unsightly and of little value. (right) Central Parkway, looking south from Liberty Street. Present Canal. LOC



[fig21\_The Dream of the Graphic (1884)] LOC



[fig22\_Cincinnati Mounds] Fort Ancient, Warren County. 1843 (Squier and Davis, *Ancient Monuments of the Mississippi Valley*, 1848)  
Image: Smithsonian Institute

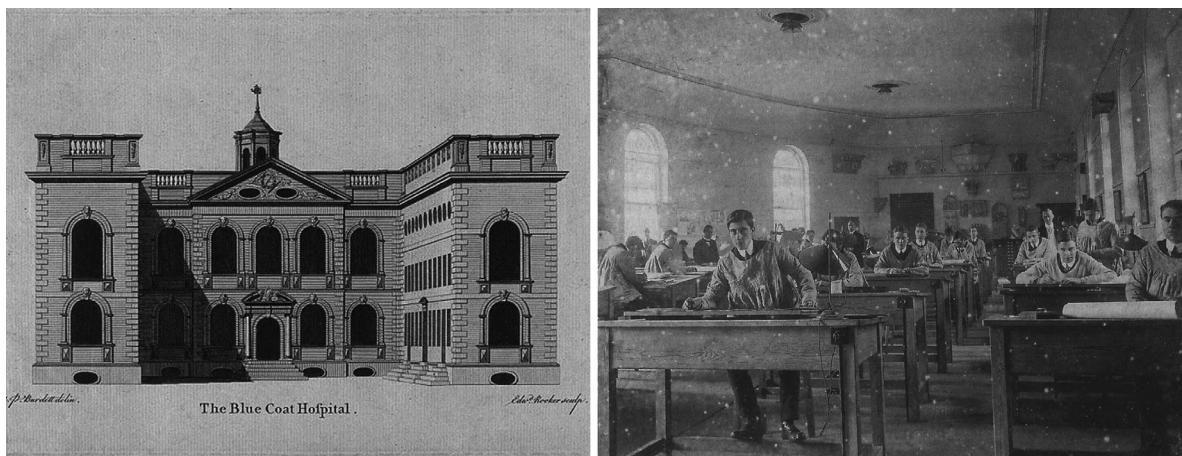


[fig23\_The Cincinnati Tablet] It is not known whether the image on the tablet is text or figure, but it's similarity with the figure of 'the trope' is suggestive.  
Image: Smithsonian Institute

*1909 – Patrick Geddes and Civic Design: the First School of Planning*

In 1909 ‘the world’s first planning school’ was established in Liverpool – a city whose early industrialization prompted equally early innovation. It was in Liverpool’s harbor that Olmsted - in his role as a New York Times correspondent, their traveling ‘ruralist’ journalist - had first landed from abroad to discover Paxton’s *Birkenhead Park* (1847) almost exactly sixty years earlier, so decisively influencing his subsequent reinvention of urban parks in North America. Civic Design was the name adopted for the program at Liverpool University, founded by Charles Herbert Reilly (1874-1948) and Stanley Davenport Adshead (1868-1946), both associates of Patrick Geddes. Soon thereafter *civic design* programs emphasizing *park systems* were established at the most advanced schools on both sides of the Atlantic – including schools like University of Pennsylvania, Virginia Polytechnic, Washington University, MIT, and Yale, among many others.<sup>266</sup>

The Civic Design program was formally established within the University of Liverpool’s Department of Architecture, but lacking the space – there was then no formal campus - they established the school’s design studios and administrative offices in a building that has since come to be known as Bluecoat Chambers on School Lane. Built in 1716 as a charity school, it is still the oldest surviving building in Liverpool – and it is yet another exemplary instance of ‘the trope’, further conditioning civic design students in that convention, as it were.



[fig24\_Liverpool University’s School of Civic Design (1910)]

‘The world’s first planning school.’ Housed in The Bluecoat Building (left) yet another exemplary instance of ‘the trope’, conditioning civic design students (right) to that convention. *Images: University of Liverpool Archive*

The program itself was structured around four themes, conceived of as two sets of polarities: ‘analysis’ and ‘design,’ on one hand, and ‘policy formulation’ and ‘management and governance’ on the other.<sup>267</sup> For chronological purposes it is necessary simply to highlight the fact that the school initiated a discourse on methods of collective, sometimes explicitly cooperative design. The methods addressed

<sup>266</sup> Peter L. Laurence, *Becoming Jane Jacobs* (University of Pennsylvania Press, 2016), 194.

<sup>267</sup> S. D. Adshead, “An Introduction to Civic Design,” *The Town Planning Review* 1, no. 1 (1910): 3–17.

drew from the practical experiences of these civic design protagonists, whose daily practice routinely addressed extreme instances of ecological, social, and economic inequities attendant to the early industrial revolution in both France and Britain – contemporary examples of which are equally familiar today. The scope of the research within the program grew over time to include environmental assessment methods, public policy analysis, and the direct collaboration of designers with ecologists and natural scientists – for example, developing integrated approaches to the planning and management of water catchments and marine areas.<sup>268</sup>

Among the first initiatives established by the school was the founding of the *Town Planning Review* in 1910, an influential peer-reviewed journal that remains one of the world's leading journals for urban and regional planning.<sup>269</sup> Among representative titles explicitly addressing the disciplinary ambition of civic design from the period the following selection gives an impression: *An Introduction to Civic Design* (Adshead 1910); *The Relation of Exposition Planning to Civic Design* (Adshead 1916); *How to Popularise Civic Design* (Edwards 1921); *Civic Design: An Inquiry into the Scope and Nature of Town Planning* (Holford 1949) and *Scale in Civic Design* (Blumenfeld 1953). The journal promoted the interdisciplinary discourse around civic design, and the program quickly gained an international reputation for innovative research, developing and applying new spatial analytical methods while drawing on techniques from economics, geography, demography and statistics.<sup>270</sup> These studies were predicated on detailed surveys and inventories of numerous physical, social, and ecological factors of the areas in question. In many respects the program was informed by the experience of Geddes and these civic designers participating in and contributing to the ‘world’s first comprehensive survey,’ initiated in London in 1894 by the English architect Charles Robert Ashbee. Ashbee was a social activist in the East End of London, living at Toynbee Hall – the world’s first ‘settlement house’ – where he met Jane Addams, which led her to invite him and his wife to Chicago,<sup>271</sup> where they met and befriended Katherine Lloyd Wright and her husband Frank.<sup>272</sup> This was an unusually intense friendship, evidently borne of mutual admiration, and Ashbee was later asked by Wright to author the introduction to Wright’s first European publication.<sup>273</sup>

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<sup>268</sup> “The Department of Civic Design - University of Liverpool,” 2009, <https://www.liverpool.ac.uk/aesop2009/CivicDesign.htm>.

<sup>269</sup> “Town Planning Review,” Liverpool University Press, 2017, <http://online.liverpooluniversitypress.co.uk/loi/tpr>.

<sup>270</sup> Adshead, “An Introduction to Civic Design”; S. D. A., “Civic Design at the Royal Academy,” *The Town Planning Review* 1, no. 2 (1910): 153–56; Lionel B. Budden, “The Relation of Exposition Planning to Civic Design,” *The Town Planning Review* 6, no. 3 (1916): 153–62; A. Trystan Edwards, “How to Popularise Civic Design,” *The Town Planning Review* 9, no. 3 (1921): 139–46; William Holford, “Civic Design: An Inquiry into the Scope and Nature of Town Planning,” *The Town Planning Review* 20, no. 1 (1949): 17–31; Hans Blumenfeld, “Scale in Civic Design,” *The Town Planning Review* 24, no. 1 (1953): 35–46.

<sup>271</sup> Addams, *Twenty Years at Hull-House*.

<sup>272</sup> Alan Crawford, Frank Lloyd Wright, and Charles Robert Ashbee, “Ten Letters from Frank Lloyd Wright to Charles Robert Ashbee,” *Architectural History* 13 (1970): 64–132, <https://doi.org/10.2307/1568314>.

<sup>273</sup> Anthony Alofsin, ed., *Frank Lloyd Wright: Europe and Beyond*, 1st edition (Berkeley: UC Press, 1999).

Ashbee had been prompted to undertake the ‘world’s first comprehensive survey’ by the unpopular destruction of the Old Palace of Bromley in his East End neighborhood, as he wrote in the introduction to the first volume of the survey, published in 1900:

*Six years ago the public conscience was stirred by the destruction by one of the leading municipal authorities of a great historic building...those who were influential in saving portions of the wreckage for national purposes decided to form themselves into a committee and appeal to the public, with a view to compiling a registry or survey of whatever was still left of interest in...London, and in those parts, still but little touched, into which Greater London was spreading.*<sup>274</sup>

This initial idea of a ‘building survey’ resulted in the first volume of *The London Survey* being published in 1900.<sup>275</sup> Ashbee’s efforts were complemented by Patrick Geddes, who advised expanding the scope to include a ‘social survey’, an ‘ecological survey’, and a ‘civic survey,’ contributions that first appeared the second volume of the survey, published in 1909 - the same year the Civic Design program was inaugurated in Liverpool, and, notably, the same year *The Plan of Chicago* was published by Daniel Burnham and Edward Bennett.<sup>276</sup> From the year the plan was published Geddes is known to have referred to it extensively in his lectures and writings. For example in *Cities in Evolution: An Introduction to the Town Planning Movement and to the Study of Civics* (1916) he noted:

*How vigorously the problem of linking up a great regional metropolis to its surrounding towns and their province must be grasped is probably as yet nowhere better evidenced than has been shown in Mr. Burnham's bold and masterful planning of the region around Chicago, no less than in his proposals for the city in itself...*<sup>277</sup>

Olmsted, Jensen and Perkins’s contributions to that scheme are not widely recognized, so it isn’t surprising that Geddes attributes the entire scheme, including the regional park system, to Burnham. And Geddes has other reasons to be thinking of Chicago. In *Our Social Inheritance* (1919) he writes of more explicitly of his admiration for Jane Addams:

*Jane Addams, that virtual Abbess of Chicago, whose ‘Hull House’ has become in its turn foremost among city centres of social endeavour and civic uplift, of individual training and of general example. Of her few books, each more valuable than its predecessor, there cannot be too highly recommended...for all*

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<sup>274</sup> C. R. (Charles Robert) Ashbee and London County Council, *The Survey of London : Being the First Volume of the Register of the Committee for the Survey of the Memorials of Greater London, Containing the Parish of Bromley-by-Bow* (London : P.S. King, 1900), xiii, <http://archive.org/details/surveylondbrombbo00ashb>.

<sup>275</sup> Ashbee and London County Council, *The Survey of London*.

<sup>276</sup> Walter H. Godfrey, *The Survey of London: Volume 2*, vol. 2 (London: London County Council, 1909), <http://www.british-history.ac.uk/survey-london/vol2/pt1>.

<sup>277</sup> Patrick Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 1968th ed. (New York: Harper & Row, 1915), 48.

*who would handle civic questions with efficiency, and...for the fellow-citizens they have still to arouse and interest - her *Spirit of Youth and the City Streets* (Macmillan, 1910); so that it is the firm conviction of the present writers that there is perhaps no social task more promising, more likely to be directly and vitally fruitful, whether for Civics or Eugenics, for Morals or Ideals, than the millionfold diffusion of this little volume, and that among all classes, by all possible resources of publicity and cheapness, teaching and influence.*<sup>278</sup>

Regarding his view on the relationship of his work with that of Addams and Burnham he further specifies the correlation of their efforts in Chicago and his own in Edinburgh:

*Chicago is peculiarly fortunate in civic workers under their head and leader, Jane Addams, whose truly civic book has been noticed above: while our own little group of University Halls in Edinburgh has also for the past five-and-twenty years and more been working in its Outlook Tower at the civic studies and endeavours, and sociological interpretations and experimental initiatives, of which the present Series is largely an outcome. Both Hull House and Outlook Tower thus stand for a programme of regional and civic surveys and reconstructive endeavours, even as far as Town-Planning and Civic Design. Thus Burnham's famous plan of Chicago has been largely initiated from the one, and [his own] itinerant 'Cities and Town-Planning Exhibition' from the other. A scheme of such a civic observatory and laboratory as Civicollege and Civicentre require to be, was also outlined to the Sociological Society a few years ago; and the present writers have pleasure in offering the reader all the service in their powers if he will now, in these more auspicious times, take up the idea and purpose of its better fulfillment.*<sup>279</sup>

Here, Geddes is directly equating *The Chicago Plan*, as being 'largely initiated' from the activities centered around Jane Addams's Hull House, with his own famously well travelled *Cities and Town-Planning Exhibition*, as being 'largely initiated' from the activities centered around his own Outlook tower. The Sociological Society address he refers to in the context of his still innovative '*Civicollege and Civicentre*' ideas is the illustrated essay 'A Civic Museum', published in *Sociological Papers* in 1907:

*We learn by thinking, it is true; but we also learn by living: Vivendo discimus. Let us be developing our civic consciousness, our civic conscience, our active citizenship; our puzzles about methods will thus be found largely to be resolving themselves.*<sup>280</sup>

Just so, *The Chicago Plan* explores the kind of ideal synthesis of practical experience and visionary design that he himself had been developing for years with his own community in Edinburgh. *The Chicago*

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<sup>278</sup> Branford and Geddes, *Our Social Inheritance*, 303-04.

<sup>279</sup> Branford and Geddes, 359.

<sup>280</sup> Patrick Geddes, "A Suggested Plan For A Civic Museum (Or Civic Exhibition) And Its Associated Studies," *Sociological Papers* 3 (1907): 198-99.

*Plan*'s constructive synthesis of polarities was admired by Geddes, and he speaks to its successful reconciliation of genuinely democratic civic values and economic considerations, and of ecological informality and formally rigorous monumentality. Geddes's appreciation was informed by his first hand knowledge of the city having been hosted there by Jane Addams in 1901, when he spoke to the Society of Arts and Crafts, of which Wright, Jensen, and Burnham were founding members. In *Patrick Geddes: Social Evolutionist and City Planner*, Geddes scholar Helen Meller writes,

*Geddes found those most receptive to his ideas amongst the promoters of Settlements in the United States, especially Jane Addams of Hull House, and his contacts with the sociologists in Chicago University.*<sup>281</sup>

Among these contacts at the University of Chicago were sociologists John Dewey and William James, as well as faculty member Charles Zueblin. Zueblin had been a regular visitor to Geddes's Summer Meetings in Edinburgh, and later wrote a eulogy on the Outlook Tower as the world's first sociological laboratory, which was published in the American Journal of Sociology in March 1899.<sup>282</sup>

But in addition to those areas within existing cities that were in need of 'conservative surgery' – as Geddes described the care needed to work within existing communities – as Britain's 'first ecologist', Geddes was particularly interested in those areas at the edges of cities that were, in the words of the London Survey, 'still but little touched'.<sup>283</sup> As his colleague, and frequent participant in the civic design program at Liverpool, Patrick Abercrombie said:

*Bluntly, what Geddes taught was that if you wish to shape the growth of a town, you must study it: it sounds simple, but the Civic Survey, by whose agency it can be done, is a sinister and complicated business.*<sup>284</sup>

Another frequent lecturer at the School of Civic Design bringing a distinctly ecological worldview was the landscape architect Thomas Mawson (1861-1933), also a close friend of Geddes. Following the British *Housing and Town Planning Act* of 1909, an interdisciplinary group of surveyors, sculptors, civil engineers, lawyers, landscape architects, architects and others began working together within local government to draw up schemes for the development of land, and in 1914 both Geddes and Mawson were among the founding members of the British Town Planning Institute. In 1929 Mawson also became first president of the Institute of Landscape Architects. We will return to the School of Civic Design in the next chapter. Meanwhile this brief review of institutions and associations stands to illustrate the interdisciplinarity and implicit activism of the *civic design* paradigm.

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<sup>281</sup> Helen Meller, *Patrick Geddes: Social Evolutionist and City Planner* (Routledge, 2005), 81.

<sup>282</sup> Meller, 82.

<sup>283</sup> Meller, *Patrick Geddes*.

<sup>284</sup> Amelia Defries, *The Interpreter Geddes: The Man and His Gospel* (London: Routledge, 1927), 322.

#### *1909 – Nolen’s Wisconsin Parks*

The University of Wisconsin was established in the state capital of Madison in 1848, and expanded in 1889 with the addition of the College of Agricultural and Life Sciences. This college was one of 76 land-grant colleges established across the nation by the Morrill Acts of 1862 and 1890, federal legislation created in direct response to the industrial revolution and the negative social changes caused by it. *[fig25\_madison\_trope]* The Morrill Acts granted federal lands to the states to establish and endow colleges, and their mission focused on teaching practical agriculture and applied engineering:

*...without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.<sup>285</sup>*

This mission was in contrast to the more conventional historic focus of higher education institutions on relatively abstract liberal arts curricula, and served to make land-grant colleges and universities radically more community based and regionally focused than conventionally insular institutions of higher learning. The Morrill Acts were implemented in tandem with the Hatch Act of 1887 – establishing agricultural experiment stations at land-grant universities – and later the Smith-Lever Act of 1914 – establishing the Cooperative Agricultural Extension service, a partnership among federal, state and county governments allowing universities to extend their programs to all community members, not only students.

Among these land-grant schools and extension services, Madison was the only one to be established in the center of the urban capital, and the campus forms a wedge of rural landscape penetrating into the heart of the city, as the first official campus plan of 1875, titled ‘Experimental Farm and College Grounds, belonging to the University of Wisconsin,’ effectively illustrates. *[fig26\_university\_experimental\_farms]* Madison’s particularly intimate rural urban relations set the stage for an early and vitalizing contribution to park systems, undertaken in cooperation with an array of stakeholders whose interests, under other circumstances, were often antagonistic. We will enter the timeline with the Madison Park and Pleasure Drive Association, an important civic organization that was very successful in correlating the interests of bicyclists, automobile enthusiasts, boating clubs and railroad corporations. The organization was also instrumental in bringing talented designers to the city, including Frank Lloyd Wright who designed a striking boathouse for the University Boating Club in 1902, on a site given the park system treatment by his famed elder Chicago contemporary, *landscape gardener* Ossian Cole Simonds (1855-1931) – who had also worked on William Le Baron Jenny’s first Chicago Park System designs in the early 1870s. *[fig27\_yahara\_boathouse]*

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<sup>285</sup> “Morrill Land-Grant Act: Land-Grant Agricultural and Mechanical College Act of 1862,” § 130 (1862), 504.

Another important talent brought to the city by the Madison Park and Pleasure Drive Association was landscape architect John Nolen (1869-1937). Nolen was a Philadelphia native who obtained a doctorate degree in economics from the University of Pennsylvania, and ten years later he returned to school and obtained a landscape architecture degree at Harvard where he studied under Frederick Law Olmsted, Jr. and Charles Eliot, who was then the school's President. Nolen's fame grew as a frequent lecturer on civic design and his papers – properly archived at Cornell University – provide a great deal of evidence that he was active in many professional organizations across a variety of disciplines, including the *American City Planning Institute* (now *American Institute of Planners*), *United States Housing Corporation*, *American Civic Association* (now *Urban America*, a particularly significant rebranding in light of rural urban and regional design discourses), *American Society of Landscape Architects*, *United States Army Educational Committee*, *American Society of Planning Officials*, *United States Shipping Board*, *International Garden Cities and Town-Planning Federation*, *United States Department of Interior Resettlement Administration* (administering Greenbelt towns), *National Conference on City Planning* (now, also, *Urban America*), *International Town Planning Congress of Paris*, and the *Town Planning Institute of England*.<sup>286</sup>

Nolen soon became an author as well, and in 1907 he published a new edition of Humphry Repton's *Art of Landscape Gardening* in which he dedicates his introductory text to Repton's innovative use of side-by-side imagery, 'comparative proportion', and 'use of perspective'.<sup>287</sup> His next book was *Madison: A Model City*, written in 1910, and it employs exactly the methods he'd admired in Repton's side-by-side comparative images to great effect.<sup>288</sup> Nolen's first official work in Wisconsin was to develop a report for the Wisconsin State Park Board, titled *State Parks for Wisconsin* and published in 1909.<sup>289</sup> But in fact this was an outcome of Nolen having been contacted the previous year by a private institution, the Madison Park and Pleasure Drive Association, with the request that he advise them on the layout of a park system for the city. This association did not have the financial resources to hire Nolen directly, and had enlisted the support of the city, the state and the university, and together they devised a contract to have Nolen make recommendations for each of these interests. The organization then undertook to publish *Madison: A Model City*, and in an opening statement their intention was given, followed by a complete list of 50 signatories of a Madison community Citizen's Committee:

*On January 26, 1909, about three hundred representative citizens of Madison met for the purpose of considering the securing of a comprehensive plan for the future growth and development of the city as the capital of the state and the home of its university. The funds needed for the work had been secured and by unanimous vote John Nolen, landscape architect, of Cambridge, Massachusetts, was engaged to prepare*

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<sup>286</sup> "The John Nolen Papers, 1890-1938, 1954-1960," Cornell University Library Archives, accessed March 30, 2017, <http://rmc.library.cornell.edu/EAD/htmldocs/RMM02903.html>.

<sup>287</sup> Humphry Repton, *The Art of Landscape Gardening*, ed. John Nolen (Boston: Houghton Mifflin, 1907).

<sup>288</sup> John Nolen, *Madison: A Model City* (Madison, Wis: Madison Park and Pleasure Drive Association, 1911).

<sup>289</sup> John Nolen, "State Parks for Wisconsin" (Madison: Wisconsin State Park Board, 1909).

*such a plan. An advisory committee of fifty [hereafter Citizen's Committee] was named to assist the directors of the Madison Park and Pleasure Drive Association in securing a plan which would be for the best interests not only of the city, but also of the state and of the university.*<sup>290</sup>

The Nolen plan established a vision for park systems that prioritized the very site established, first by Simonds and then by Wright, as Yahara Parkway, which Nolen identifies as ‘the most important connecting link in the Madison Park system. *[fig28\_nolen\_yahara]* Nolen’s first plan for ‘The Park System of the City of Madison Wisconsin’ was issued in 1908, and features Yahara Parkway as the easternmost north-south corridor in the city’s park system. *[fig29\_nolen\_park\_system]* By 1910 the plan has been revised with greater precision, and the scope of the plan has expanded to include park system loops around each of the two large lakes – Lake Monona to the south and Lake Mendota to the north. *[fig30\_nolen\_model\_city]* The plan also establishes the city’s first major public park as a wide circuit around the smaller Lake Wingra, and the park is conceived of as a wedge of ‘wilderness’ penetrating the heart of the city, complementing the same gesture made by the University Campus just northeast of the site. In the report Nolen enthused:

*No other city of the world, so far as I know, has naturally such a unique situation on a series of lakes with an opportunity for so much and such direct relationship to beautiful water frontages.*<sup>291</sup>

Nolen’s plan for the campus itself capitalizes on the lakeshore site, and on its existing armature, emphasizing ‘the trope’. His early experience with this lakeshore campus is dated 1907, and was suggestively responded to with Nolen’s layout for the University of Minnesota’s riverfront campus the following year. Nolen presents both these plans side-by-side in the report. *[fig31\_nolen\_trope]* The variety of design expression within the formal convention of ‘the trope’ illustrates the utility of such conventions, and at this point in history the use of it by other civic designers is on the rise. Werner Hegemann would later suggest that Nolen’s work on the Madison campus helped to popularize the innovations that had anticipated his arrival there – namely the location of the Agricultural School within the urban campus, creating a ‘rural wedge’ that penetrates the city – and points out that this formal strategy was taken up by the designer John Galen Howard in his campus plan for the University of California-Berkeley (1914). *[fig32\_begemann\_trope]* It is interesting, however, that in this context Hegemann cites Olmsted’s early skepticism about the trope in his 1866 report to the same school, where Olmsted had written:

*I would propose to adopt a picturesque, rather than a formal and perfectly symmetrical arrangement, for the two reasons that the former would better harmonize artistically with the general character desired for the neighborhood, and that it would allow any enlargement or modification of the general plan of building adopted for the College, which may in the future be found desirable.*<sup>292</sup>

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<sup>290</sup> Nolen, *Madison: A Model City*, 15.

<sup>291</sup> Nolen, 19–21.

<sup>292</sup> Werner Hegemann, “Report on a City Plan for the Municipalities of Oakland and Berkeley” (The Municipal Governments of Oakland and Berkeley, 1915), 154.

Hegemann goes on to reflect:

*This statement of the elder Olmsted is interesting not only for what it says, but becomes of increased weight from the fact that he made it, though in his wildest dreams he did not think of an institution that would ever be as large as this great institution has become today. In other words, a formal and symmetrical arrangement of the College buildings which seemed to him "a cause of great inconvenience and perplexity" has become a much more difficult undertaking with the unheard of growth of the needs of the College. Considered in this light, one realizes the enormous task represented by the present formal arrangement...*

Hegemann's concerns about 'the trope' were clearly far from ideological, but within a decade designers increasingly rebelled against the insistent formality of this convention – and some, like Wright, after employing the trope later came to eschew it for both ideological and formal reasons, as we will see.

The revised plan that accompanied Nolen's publication of *Madison: A Model City* in 1910 also reflected the park commission's successful negotiations with railroad interests. Shortly prior to its publication the Madison Park and Pleasure Drive Association's secretary Charles N. Brown published an article in the *Annals of the American Academy of Political and Social Science* titled "The Park Movement in Madison, Wisconsin" in which he provides insight into the negotiations engaged in throughout the process of preparing the capital's park system, writing:

*The park movement in our city has had an exceptional, if not a unique, development. It has been practically a private enterprise, carried out by private individuals with private funds raised by popular subscription administered by a private corporation, acting as trustee for the city.<sup>293</sup>*

This park commission, 'acting as a trustee for the city,' successfully negotiated with the railroad companies to make infrastructural investments in the public interest, for example:

*In order to make a clearance of eight feet, several city bridges and four railroad bridges had to be raised and the railroads were obliged to elevate their tracks upon either shore for considerable distances.<sup>294</sup>*

Addressing his ambition for the integration of railroads in his *Model City*, providing the background of these negotiations and highlighting that the railroad concessions were prompted by clear thinking and a solid design proposal, Nolen himself writes:

*With a view to correcting the evils of the railroad approaches in East Madison, a plan was prepared a year ago, providing for a union station for the Chicago, Milwaukee and St. Paul, and the Chicago and Northwestern (now located across the street from each other), the elimination of the grade crossings in that neighborhood, and the restoration of the Monona Lake front to the people.<sup>295</sup>*

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<sup>293</sup> Charles N. Brown, "The Park Movement in Madison, Wisconsin," *Annals of the American Academy of Political and Social Science* 35 (March 1, 1910): 297.

<sup>294</sup> Brown, 298.

<sup>295</sup> John Nolen, *Replanning Small Cities; Six Typical Studies* (New York: B.W. Huebsch, 1912), 137.

It is a tribute to Nolen's diplomacy that his plan successfully correlates pedestrian mobility, water transportation, bicycles and automobiles along with railroads. Having encountered several instances in which railroad interests narrowly circumvented the parallel interests of other modes of transportation, it is encouraging to have this positive example of parallel systems. Clearly it is an issue that was central to the questions of civic life, and the responses of other designers to this challenge Werner Hegemann's was particularly incisive. Writing of the 'hegemony of railroads' in the Oakland/Berkeley report of 1915, as cited earlier, he illustrates the issue by taking Chicago as his example:

*The so-called "Chinese Wall" around Chicago's Business District...shown in black indicates the great extent of railroad-owned property hampering the extension of and much causing congestion in Chicago's business district. Because of the present method of taxing railroad property, it is possible for railroads to hold large areas of land practically tax-free. Much of this land is either unused or not used intensively, although it is badly needed for city-planning improvements.<sup>296</sup> [fig33\_chicago\_railroads]*

The following year Hegemann was commissioned by a group of civic organizations in Milwaukee, Wisconsin to prepare a report for the city, and he again prioritized the issue and reflects on the two points Nolen's 1910 plan had successfully addressed:

*In order to show the necessity of such a plan the railroad problem shall be touched on here from two angles, i.e. the elimination of grade crossings and the problem of industrial areas, the latter being closely connected with [issues related to] the harbor...<sup>297</sup>*

Hegemann dedicates nearly ten pages to the subject in a chapter titled 'Railroads and their Yards Determining the City's Map', illustrated with a plan of Milwaukee's central district labeled 'Areas in the Heart of Milwaukee Controlled by Railroads.'<sup>298</sup> [fig34\_hegemann\_milwaukee\_railroads]

Nolen's work to reconcile railroads with the city is vividly illustrated in a series of side-by-side comparisons he makes between Madison and the city whose precedent he suggests it ought to aspire to emulate: Geneva, Switzerland. One of the first comparative images shows the 'East Madison Railroad Approach: First Impression of Wisconsin's State Capitol' – which is rather desolate and non-too-flattering – and a 'Hotel on Lake Geneva, Switzerland: A situation that could be duplicated many times on the Madison Lakes, if the city were developed under a proper plan.'<sup>299</sup> [fig35\_madison-geneva\_railroad] The same comparative treatment is also given to arrival in the city by water, with images captioned 'The Water Approach to Madison: Showing also the East Madison station of the C.,

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<sup>296</sup> Hegemann, "Report on a City Plan for the Municipalities of Oakland and Berkeley," 59.

<sup>297</sup> Werner Hegemann, "City Planning for Milwaukee: What It Means and Why It Must Be Secured" (Milwaukee: South Side Civic Association, February 1916), 15.

<sup>298</sup> Hegemann, 14.

<sup>299</sup> Nolen, *Madison: A Model City*, 62–63.

M. & St. Paul Railroad' and 'The Water Approach to Geneva, Switzerland: Compare with views on opposite page.<sup>300</sup> [fig36\_madison-geneva\_water]

Among the key sites Nolen recommends for special treatment in the city is the lakeshore at the terminus of the city's southern axis, where he proposes the 'Monona Terrace' – a civic space that he ambitiously suggests ought to be modeled on no less a precedent than the gardens at Versailles, providing another set of comparative images captioned 'Site of proposed terrace at the foot of Monona Avenue, Madison, overlooking the lake' and 'A view in the gardens of Versailles, suggesting an appropriate style of treatment for the proposed approach of the new Wisconsin State Capitol from Lake Monona.' [fig37\_nolen\_monona-terrace] Again the photo of the existing lakeshore condition is ragged and desperate, and the leap of imagination required to reconcile this with his monumental vision prompted him to elaborate the scheme to a significant extent. The plan and section Nolen provides gives 'the trope' treatment to the south flank of the capital building along the axis to the lakeshore, and the capital's diagonal axes likewise are given the park system treatment where they terminate at the lakeshore, with 'Monona Terrace' occupying the area between them. [fig38\_state-capitol] Nolen's visionary scheme was later taken up by Frank Lloyd Wright with surprising directness – in plan, articulation, and even in name – first in 1938 and then every few years thereafter until his passing in 1959.<sup>301</sup> An interpretive version of Wright's 'Monona Terrace Auditorium and Civic Center' was finally realized in 2000, and a visit to the site now prompts astonishment – at both the fidelity of that built project to Nolen's vision from nearly a century earlier, and at the success of that early conception. [fig39\_wright\_monona\_terrace]

Nolen continues his side-by-side comparisons with the main axis of Madison's business district, State Street, featuring before and after images captioned, 'State Street, Madison, as it is today' and 'State Street, Madison, as proposed.'<sup>302</sup> [fig40\_state-street\_before-after] He then turns his attention to street trees, with one image captioned 'Street trees, Madison, under private control. Compare with opposite illustration. No further comment necessary' and the other image captioned, 'Street trees, Washington, D.C., publicly planted and maintained.'<sup>303</sup> [fig41\_street-trees] With characteristic thoroughness, Nolen also addresses neighborhood backyards, where the two contrasting images emphasize an incongruity subtly pointed out by his understated captions, 'Madison back yards near the University Club' and 'Back yard gardens in Bourneville, England, the homes of workingmen'.<sup>304</sup> [fig42\_backyards] Parallel to Nolen's ongoing work with the city of Madison and other Wisconsin cities, Nolen remained involved in the design and expansion of the Wisconsin State

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<sup>300</sup> Nolen, 94–95.

<sup>301</sup> Mary Jane Hamilton and David V. Mollenhoff, *Frank Lloyd Wright's Monona Terrace: The Enduring Power of a Civic Vision*, 1st ed. (Madison: University of Wisconsin Press, 1999).

<sup>302</sup> Nolen, *Madison: A Model City*, 52–53.

<sup>303</sup> Nolen, 124–25.

<sup>304</sup> Nolen, 130–31.

Park System. Among other long-term outcomes, this was to lead to the creation of the Wisconsin University Arboretum, an unprecedented project in large-scale landscape restoration that was encouraged by John Muir (1838-1914) - prototypical environmentalist and founder of Sierra Club founder – and following Muir’s death was accomplished in collaboration with the pioneering ecologist Aldo Leopold, whose formal academic title at the Arboretum was that of research director.<sup>305</sup> Nolen first proposed the University Arboretum in *Madison: A Model City* (1911), and the Madison Parks and Pleasure Drive Association enthusiastically promoted the idea. By 1925 they raised money for Madison parks in order to maintain open space and public access to lakeshores that were then being rapidly developed. Association executive Michael Olbrich was particularly enthusiastic, and hoped for an Arboretum that might also be a wildlife sanctuary, experimental forest preserve, protected area for sacred Native American sites, and a refuge from the city. Above all, and most perhaps most importantly, Olbrich saw the Arboretum not as a building but as an ecological armature. The regional landscape had been cutover by the logging industry – and this practice was then still current [*fig43\_cutover land*] – and Olbrich was convinced that the Arboretum could be a place to experiment with re-establishing Wisconsin’s historical landscapes. Olbrich convinced the University Board of Regents to aid in the purchase of land for a Forest Preserve Arboretum and Wild Life Refuge in 1927: 246 acres were acquired in 1932, it grew to 500 acres in 1934, and as of 2012 it is over 1,200 acres – and is park of the park system loop around the capital designed, implemented and named after Philip H. Lewis, the regional designer whose work is so central to contemporary ecological planning, and to this research.

At the formal dedication on June 17, 1934, Leopold outlined the focus of re-establishing ‘original Wisconsin’ landscape and plant communities, particularly oak savanna and tallgrass prairie – types that had effectively disappeared in the wake of European settlement.<sup>306</sup> Although Olbrich, Leopold and their Arboretum Committee may not have realized it, they had introduced a new concept in ecology: ecological restoration—the process of returning an ecosystem or piece of land to a previous, usually more natural, condition. In doing so, they laid the pioneering groundwork for an array of disciplines pertaining to restoration and management of ecological communities.<sup>307</sup>

This is an innovation that has recently come into its own, and in the past two decades large-scale ecological restoration projects have been successfully implemented on every continent. Restoration ecologist and filmmaker John D. Liu describes these restoration initiatives as ‘ecosystem

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<sup>305</sup> “History of the University of Wisconsin Arboretum,” *University of Wisconsin Arboretum* (blog), accessed November 1, 2017, <https://arboretum.wisc.edu/about-us/history/>.

<sup>306</sup> “History of the University of Wisconsin Arboretum.”

<sup>307</sup> “History of the University of Wisconsin Arboretum”; Richard L. Kent and Cynthia L. Elliott, “Scenic Routes Linking and Protecting Natural and Cultural Landscape Features: A Greenway Skeleton,” *Landscape and Urban Planning*, Greenways, 33, no. 1 (October 1, 1995): 341–55, [https://doi.org/10.1016/0169-2046\(94\)02027-D](https://doi.org/10.1016/0169-2046(94)02027-D).

based adaptation – the great work of our time.<sup>308</sup> Liu’s films document particularly representative early projects in China, Ethiopia, and Jordan, undertaken in the 1990s with the financial support of the World Bank, who hired Liu to create the first of his films on the subject.

The University of Wisconsin Arboretum is therefore among the first examples of the startling effectiveness of large-scale ecological restoration – also known as ‘ecosystem based adaptation’, and, in some community-minded circles, as *permaculture*. We will return to this subject in the closing chapter where we consider contemporary movements like *permaculture*, and related initiatives like Liu’s collective organization *Commonland* who coordinate grass roots regional scale watershed restoration projects – with project areas from 5-50km – through founding seed organizations, ‘Earth Cooperative Restoration Camps,’ where local community members learn to undertake and coordinate long term ecosystem based adaptation projects, and to establish the local institutions to administer their implementation in the future.<sup>309</sup> The value of these projects are characterized by Liu and his colleagues as ‘the four returns’:

*Return of Inspiration: Giving people hope and a sense of purpose.*

*Return of Social Capital: Creating jobs, business activity, education and security.*

*Return of Natural Capital: Restoring biodiversity, soil and water quality.*

*Return of Financial Capital: Realizing long-term sustainable profit.*<sup>310</sup>

It is clear that the returns on investments in ecological restoration are not only financial, and the early successful example of Madison’s park systems – led by such as Nolen, Leopold, Muir and Wright – provides ample evidence of this.

Then, as now, financial interests were often prioritized over other values, and John Nolen’s last book *Park Systems and Land Values* (published posthumously in 1937) addressed this issue head on. The book provides another view of the *Model City* and assesses the design and finance of parkways of three regions – Boston, Kansas City, and Westchester County – focusing on the community-based structure of their administrative organizations.<sup>311</sup> Nolen’s entire repertoire has been synthesized here, and Nolen employs three main modes of representation: Repton’s side-by-side comparisons; the regional scale territorial figures of park systems; and diagrams of the administrative organizations themselves. The side-by-side images used here are charts showing financial investments and returns on park systems, both over time within one system, and as a comparative synthesis of these three cities.

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<sup>308</sup> John D. Liu, *Ecosystem Based Adaptation: The Great Work Of Our Time* (The Brooklyn Commons: Good Ancestors Media, 2016), n. 33:59, <https://www.youtube.com/watch?v=wwDNemiLE9k>.

<sup>309</sup> John D. Liu, “Earth Cooperative Restoration Camps,” *Permaculture Magazine*, October 18, 2016.

<sup>310</sup> <http://www.finallymedia.nl>, “Commonland - 4 Returns from Landscape Restoration,” Commonland - 4 returns from landscape restoration, accessed November 2, 2017, <http://commonland.com/en>.

<sup>311</sup> John Nolen and Henry Vincent Hubbard, *Parkways and Land Values*, Harvard City Planning Studies, XI (Cambridge: Harvard University Press, 1937).

[fig44\_cost\_comparison] Following Repton's early example, Nolen also makes use of side-by-side comparison to emphasize the heuristic value of certain spatial and geometric principles.

[fig45\_heuristic\_comparison] The territorial figures of these three regions are shown as black and white reproductions of the park system plans we've seen in color. [fig46\_territorial\_comparison] Perhaps most instructive here is Nolen's comparative diagrams of the administrative organizations in the three regions, and his insistent, purposeful reflections on the similarities and differences between them. [fig47\_organization\_comparison] Whereas Boston and Kansas City appear to have markedly horizontal organizations, in fact they report to the Governor and Mayor, respectively – whereas the Westchester County organization reports directly to the park commissioners. The meaningful difference here is that the Westchester County Park Commission had been given legislative authority, and had broad economic and discretionary power.

It is interesting to compare Nolen's organizational analysis with the administrative organization Philip H. Lewis later developed for the interdisciplinary regional design team through his experience working in Madison to implement his park system loop there. [fig48\_regionaldesignteam] Lewis later used this diagram as a pedagogical framework, for example when he taught at Taliesin it served as a basis for preliminary site analysis for a Regional Design Institute campus – to be sited in the Lloyd-Jones Valley adjacent to the Taliesin campus, where we'll return in the following section – clearly demonstrating how such disciplinary and procedural clarity can usefully inform design practices. [fig49\_ruralcorelaboratory] The discipline of ecology planning commonly employs a similar level of systemic analysis, as Howard Odum's reciprocal diagram *Ecology as Urbanism, Urbanism as Ecology* suggestively illustrates. [fig50\_ecologyasurbanism] Published in Odum's *Ecological and General Systems: An introduction to Systems Ecology* (1994), the diagram is an historic model of spatial organization and interaction, showing the economy and ecology of the US in 1980 and illustrating the scalability of regional ecologies as open and permeable systems through energy and currency flows.<sup>312</sup>

As with Liu's 'cooperative restoration', Lewis's 'regional design team' and Odum's 'ecology as urbanism', Nolen's *Model City* is finally not a formal model, but a model of organization. This sequence of references make the closing images of Nolen's 1911 report for Madison all the more poignant – following that extended comparison between Wisconsin and Switzerland, it makes sense that Nolen features the plan of the city of Geneva, which he captions,

*The City of Geneva is in many respects a model for Madison. Note the organization of streets, the location of public buildings and open spaces, the public use of the lakefront.*<sup>313</sup>

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<sup>312</sup> Howard Thomas Odum, "Ecological and General Systems," in *Systems Ecology: An Introduction* (Denver: University Press of Colorado, 1994), 23–27.

<sup>313</sup> Nolen, *Madison: A Model City*, 145.

Recalling Odum's suggestive diagram, and mindful of the correlation of Lewis's campus plan and its corresponding administrative organization, one is prompted to identify the administrative organization of Geneva – its progressive history ensures that the model it provides will be instructive. *[fig51\_nolen\_geneva]* A detailed study of Geneva's park systems is beyond the scope of this strategic chronology, but one need only consider Albert Bodmer's *Plan de zones de Genève* (1936) *[fig52\_bodmer\_geneva]* and the side-by-side 'actuelle' and 'future' park system diagrams accompanying the *Rapport Général de la Commission d'Étude pour le Développement de Genève, mandatée par le Département des Travaux Publics* (1948) *[fig53\_geneva\_park\_system]* to recognize that these vivid intentions were unrealized and that a study of the administrative organization of the city's park system would be instructive. The term regionally used to describe these park systems is *coulée vert* – the direct translation of which is 'green flows', an association that sits very comfortably with Phil Lewis's 'ecological corridors'. Nevertheless, I was startled by the image Nolen chose as his final illustration in the report – it is the plan of Weimar, Germany featuring exactly the figure of Goethe's Park an der Ulm where it joins the *schlosspark* at the north, and bears the caption:

*Weimar, Germany, the Capital of Saxony. It has a population about equal to that of Madison. Its public buildings, museums of art and music, its schools, parks and city plan are models for a small city.*<sup>314</sup>

The image appears without further elaboration among the supplementary notes in the report's appendices, adding mystery to my astonishment at finding this project referred to here. *[fig54\_nolen\_weimar]* I can believe that in Germany this project is a familiar reference to landscape architects, but having never seen it referred to in the literature I've found in the park system discourse I took it as an affirmation of situating it as among the earliest model of park system precedents.

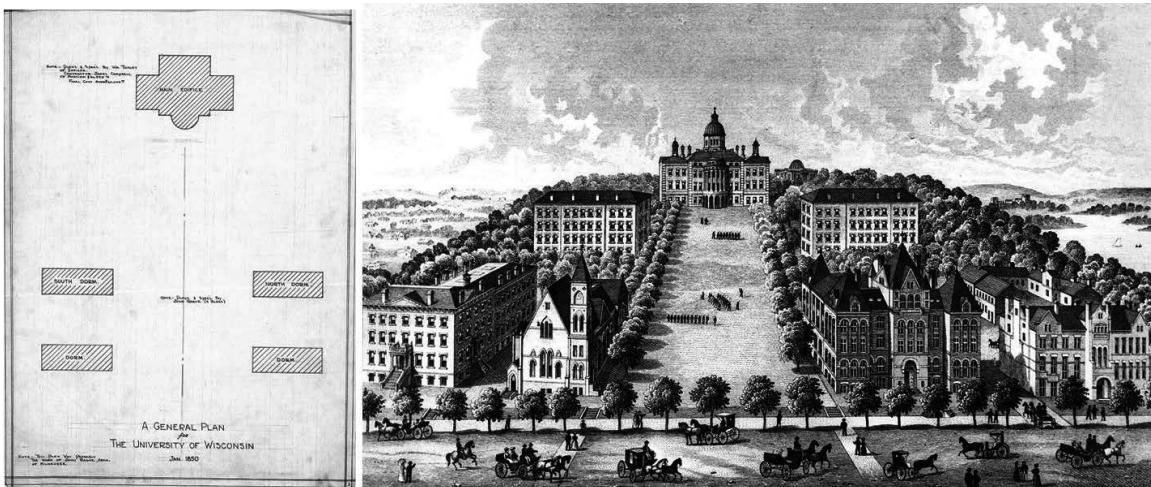
Indeed, Nolen's *Madison: A Model City* informed subsequent reports by others, as it had been informed by the outcome of many years of similar efforts, and the report is representative of an entire genre of similar reports – hybrid documents modeled on the Olmsted studio's early park system reports, Burnham's *The Plan of Chicago*, and Crawford's *American Park Systems*.<sup>315</sup> In the appendix of *A Model City*, over 60 comparable reports his own studio had already produced are listed, including Nolen's other park system proposals for Wisconsin cities of La Crosse, Janesville, and Milwaukee - and this was published relatively early in his career (+1937) while some of his best work and most prolific years were far ahead.<sup>316</sup>

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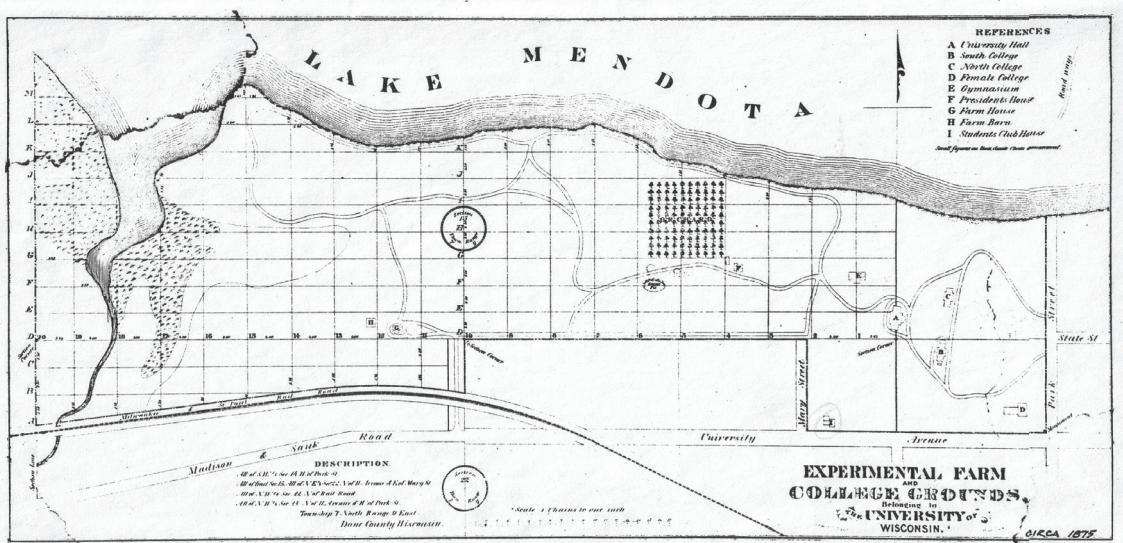
<sup>314</sup> Nolen, 160.

<sup>315</sup> See for example: Burnham et al., "The Improvement of the Park System of the District of Columbia," Park Commission, 57th Congress. First Session, Senate Report (Washington (D.C.): G.P.O., 1902); Civic league of St. Louis., *Inner & Outer Parks & Boulevards: A Complete System Connecting Existing Parks & Forest Reservations in the County* (St. Louis: The Civic league, 1907); Will H. Dunn, *Oklahoma City: A Report on Its Plan for an Outer Parkway and a Plan for an Interior System of Parks and Boulevards*. (Kansas City, Mo.: W. H. Dunn, 1910).

<sup>316</sup> Nolen, *Madison: A Model City*, 166.

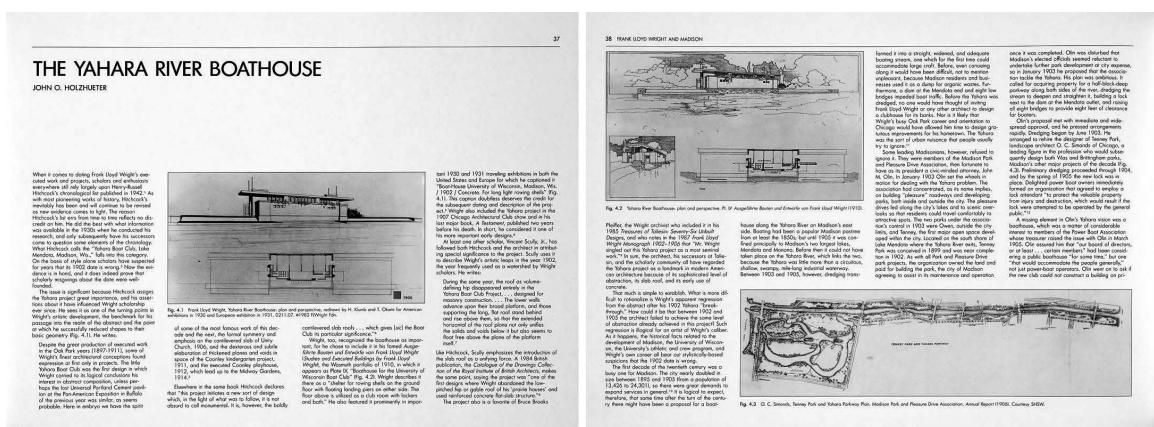


[fig25\_University of Wisconsin-Madison (1850-87)] 'The trope' (right) Bascom Hill campus. WSHS



[fig26\_University of Wisconsin-Madison, campus (1875)]

Experimental Farm and College Grounds belonging to the University of Wisconsin. WSHS



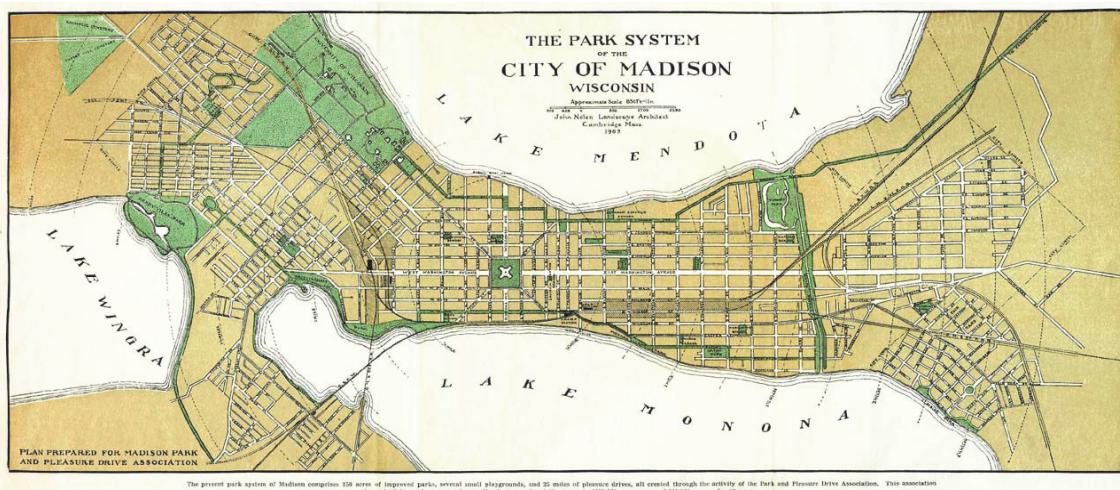
[fig27\_Wright, Yahara River Boathouse (1902)] (Holzhueter 1996, 37-38) Images: John O. Holzhueter



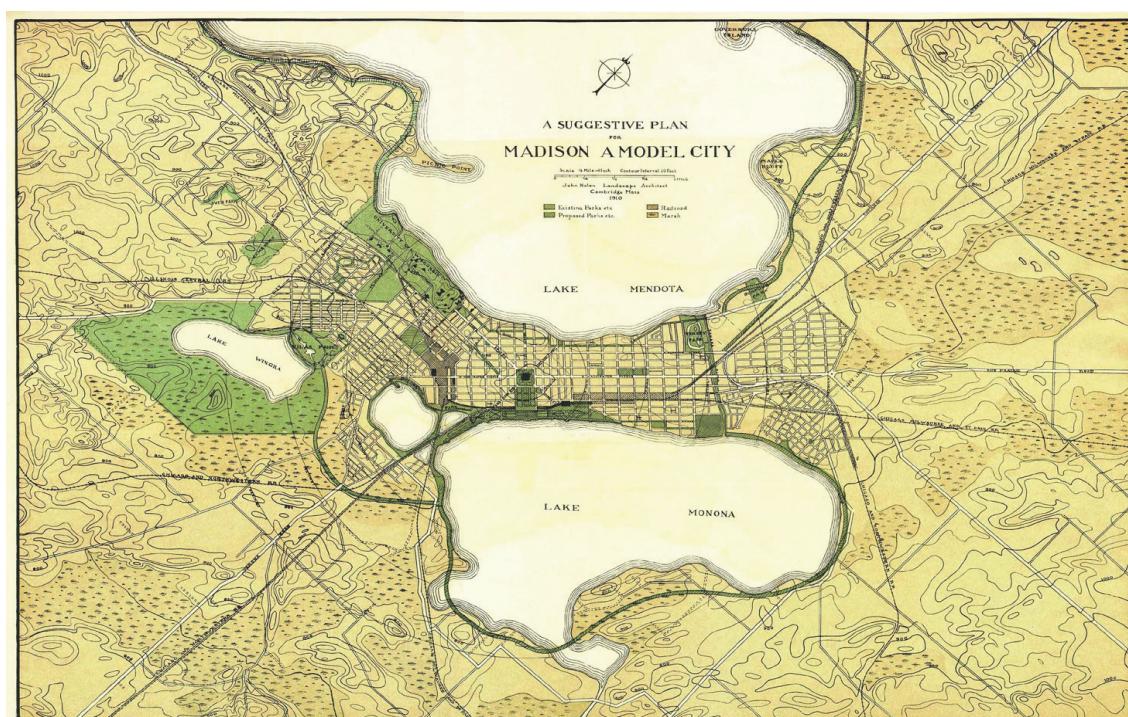
YAHARA PARKWAY, MADISON.  
The most important connecting link in the Madison park system.

[fig28\_Yahara River Parkway (1910)]

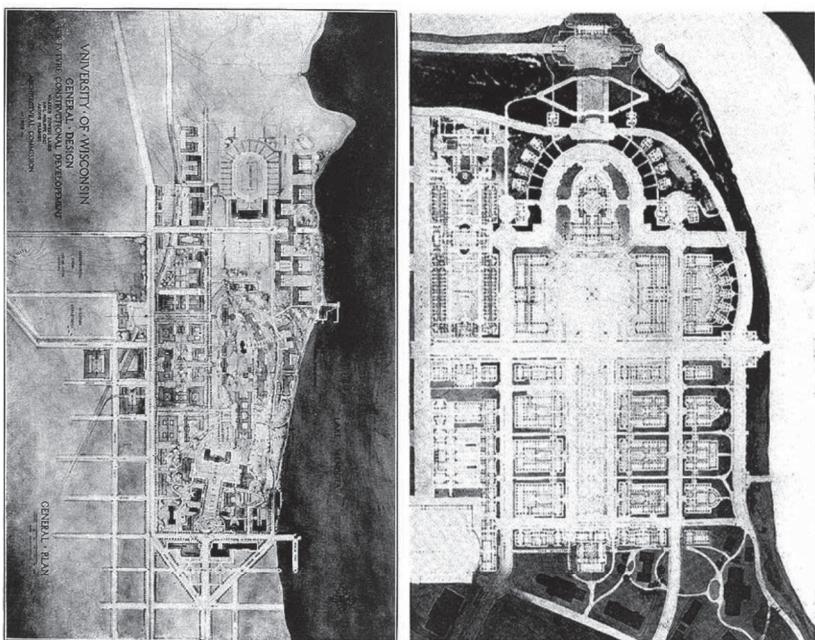
*'The work of the Madison Park and Pleasure Drive Association, the railroads co-operating.'* (Nolen 1911, 104) LOC



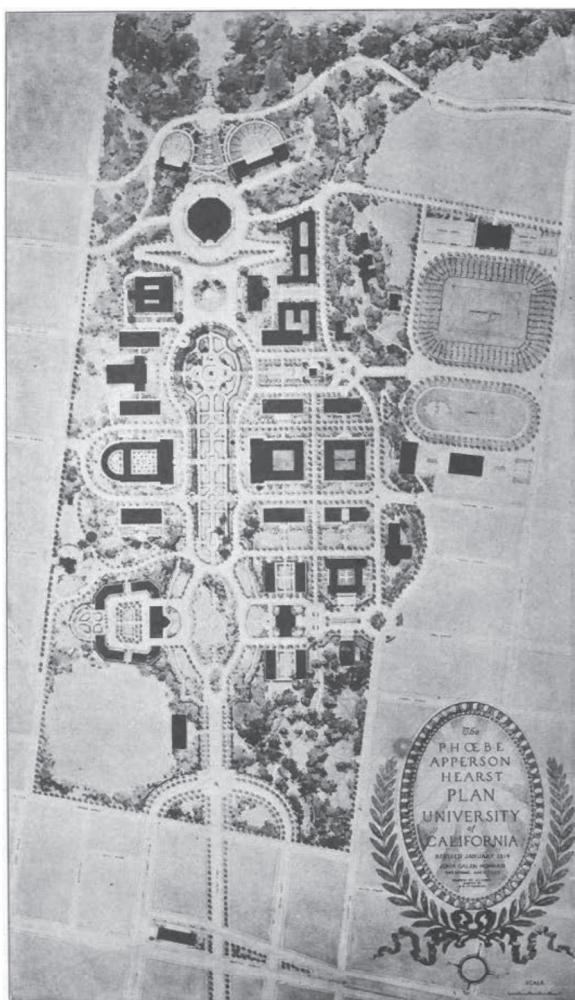
[fig29\_Nolen, *The Park System of the City of Madison, Wisconsin (1908)*] LOC



[fig30\_Nolen, *Madison - A Suggestive Plan for Madison, A Model City (1910)*] LOC

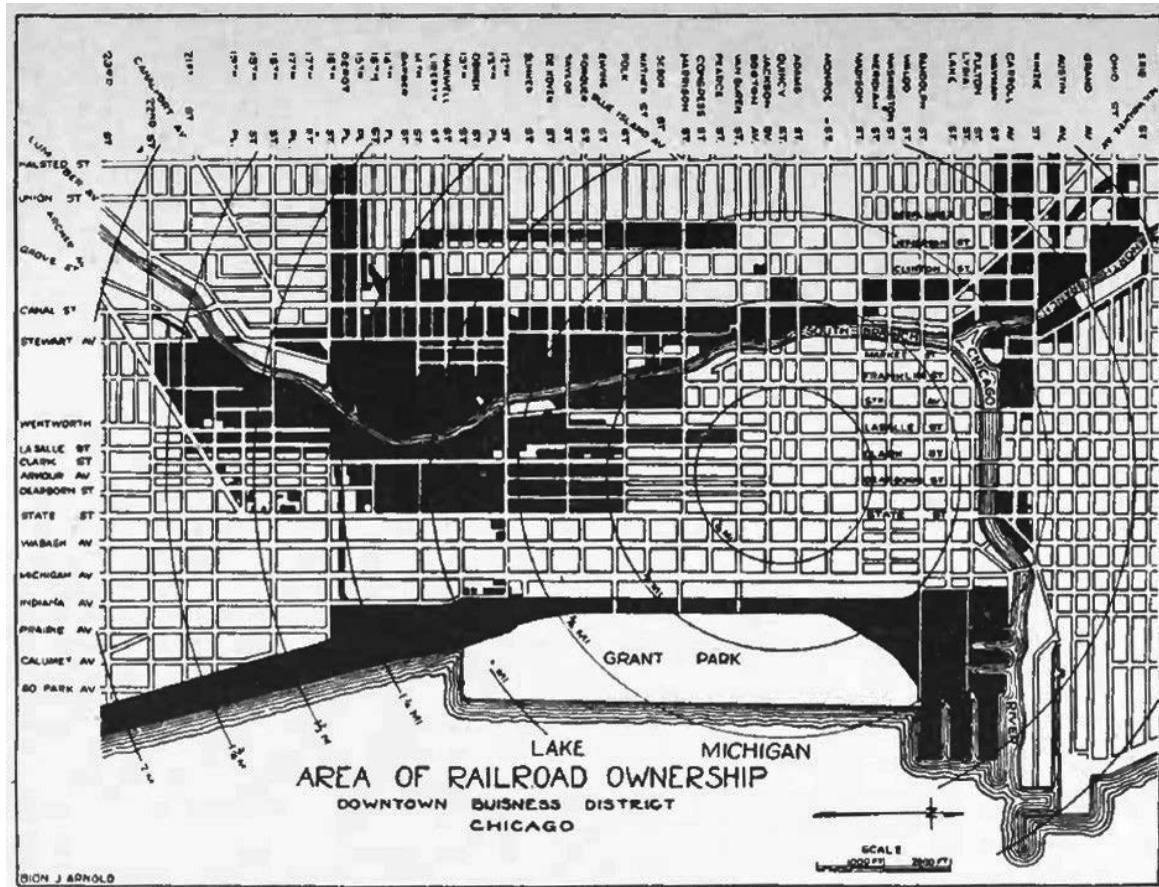


[fig31\_Nolen, (left) University of Wisconsin, (right) University of Minnesota 1910]  
Exemplary instances of the trope. (Nolen 1910, 84-85) LOC



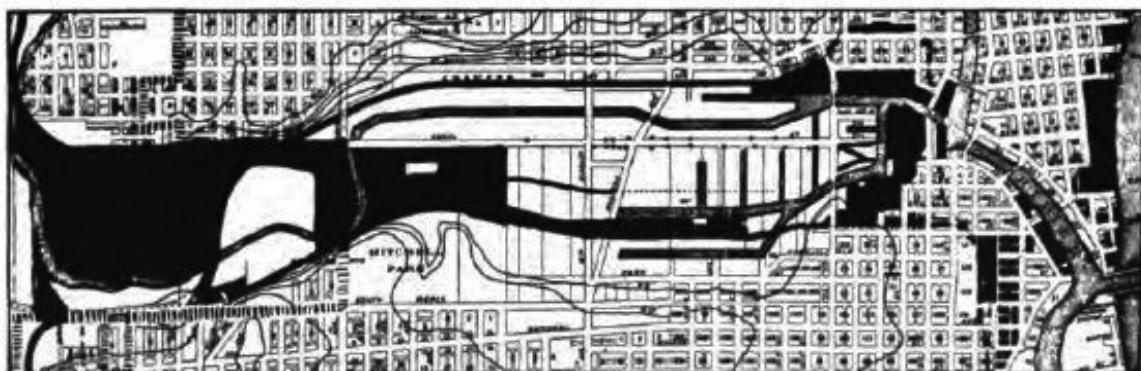
[fig32\_Howard\_UC-Berkeley(1913)]

One of the most beautiful examples of the trope, this plan is modeled on the Madison campus as a rural urban intersection (Hegemann 1915, 152) UCLA



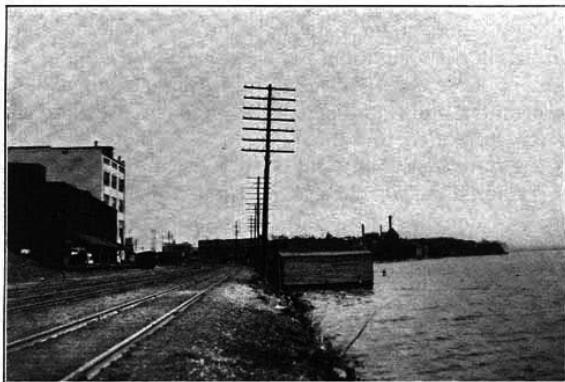
[fig33 Hegemann *Area of Railroad Ownership, Downtown Business District, Chicago (1915)*]

The So-Called "Chinese Wall" Around Chicago's Business District: The area shown in black indicates the great extent of rail road-owned property hampering the extension of and much causing congestion in Chicago's business district. Because of the present method of taxing railroad property, it is possible for railroads to hold large areas of land practically tax free. Much of this land is either unused or not used intensively, although it is badly needed for city-planning improvements. LOC

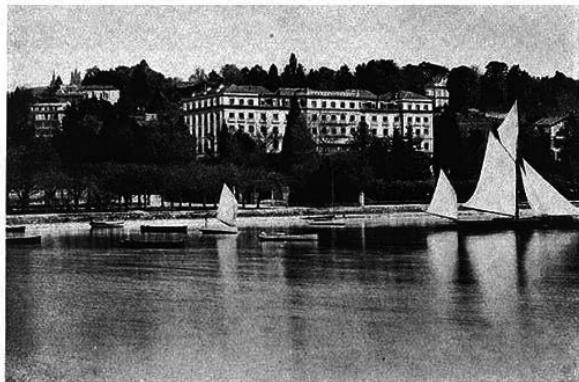


**AREAS IN THE HEART OF MILWAUKEE CONTROLLED BY THE RAILROADS**

[fig34\_Hegemann\_ Railroads and their Yards Determining the City's Map, Milwaukee (1916)] LOC



EAST MADISON RAILROAD APPROACH.  
First impression of Wisconsin's State Capital.

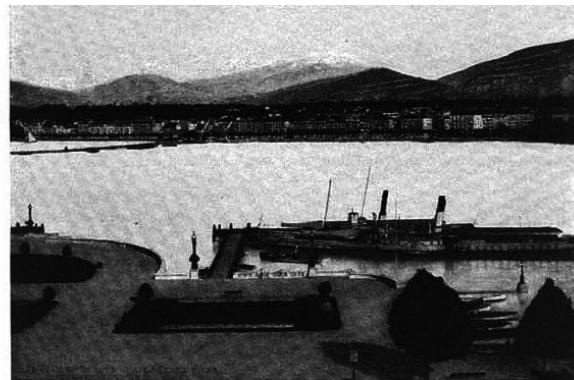


HOTEL ON LAKE GENEVA, SWITZERLAND.  
A situation that could be duplicated many times on the Madison Lakes, if the city were developed under a proper city plan.

[fig35\_Nolen\_Madison-Geneva, *Railroad Approach* (1910)] (Nolen 1910, 62-63) LOC



THE WATER APPROACH TO MADISON.  
Showing also the East Madison station of the C., M. & St. Paul Railroad.

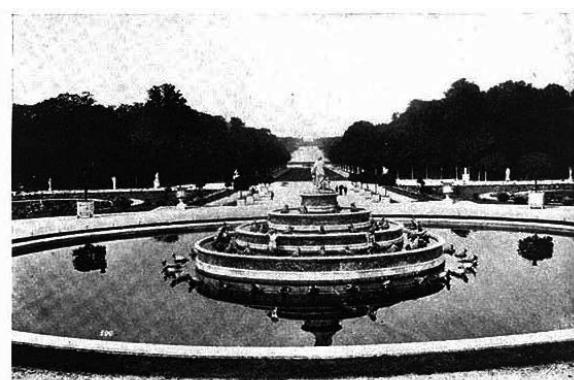


THE WATER APPROACH TO GENEVA, SWITZERLAND.  
Compare with views on opposite page.

[fig36\_Nolen\_Madison-Geneva, *Water Approach* (1910)] (Nolen 1910, 94-95) LOC

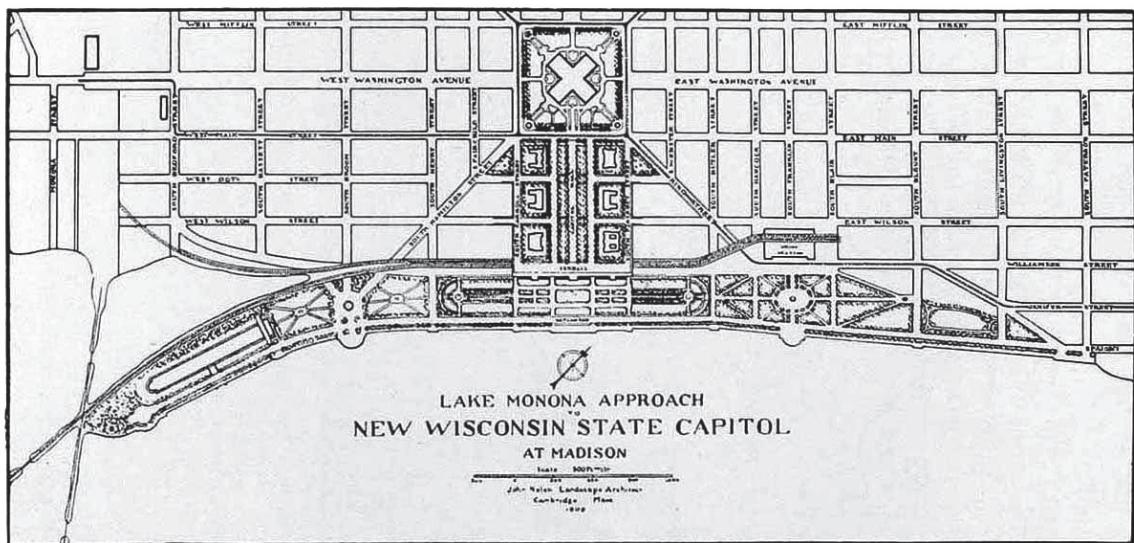


Site of proposed terrace at the foot of Monona Avenue, Madison, overlooking the lake.

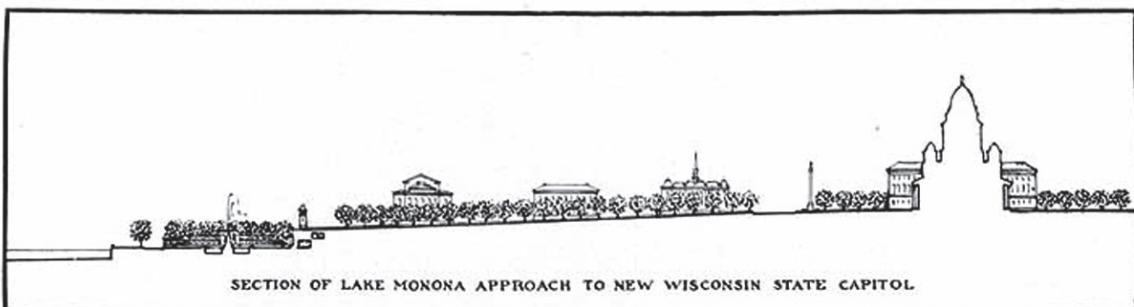


A view in the gardens of Versailles, suggesting an appropriate style of treatment for the proposed approach to the new Wisconsin State Capitol from Lake Monona.

[fig37\_Nolen\_Madison-Versailles, *Monona Terrace* (1910)] (Nolen 1910, 46-47) LOC



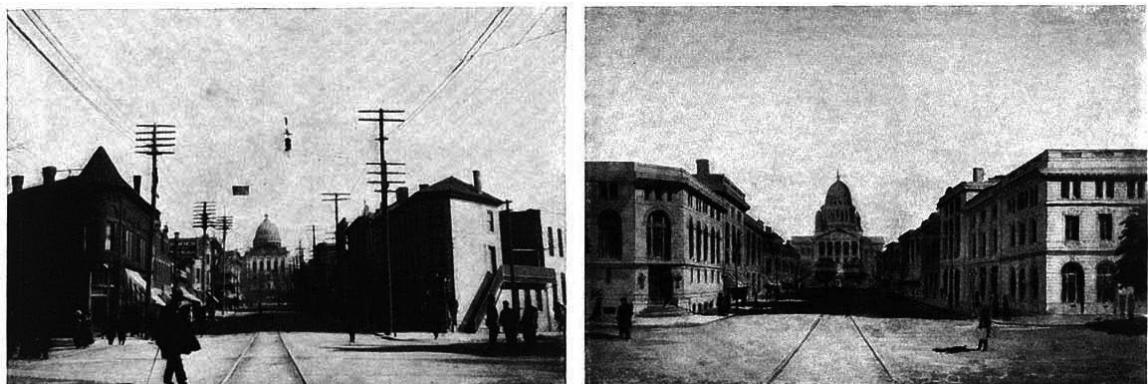
PROPOSED GENERAL PLAN.



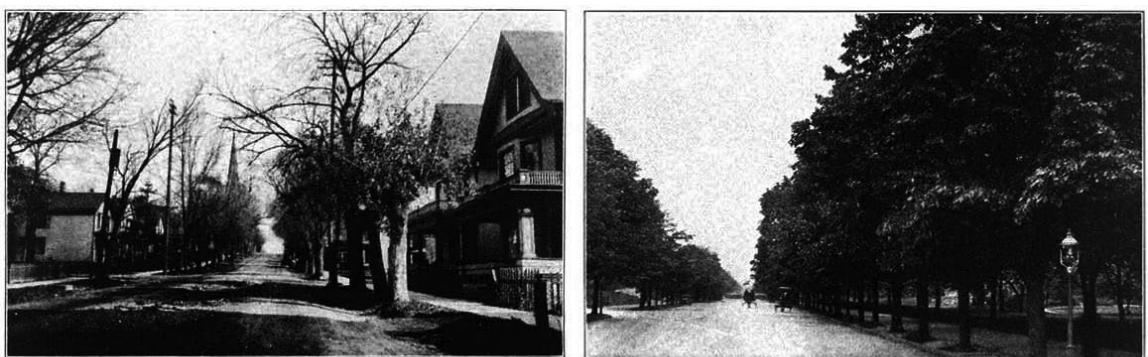
[fig38\_Nolen\_Lake Approach to New Wisconsin State Capitol (1910)] (Nolen 1910, 48-49) LOC



[fig39\_Wright\_Monona Terrace (1938-2000)] Photo, 2001 FLLW



[fig40 Nolen *State Street, before and after (1910)*] (Nolen 1910, 52-53) LOC



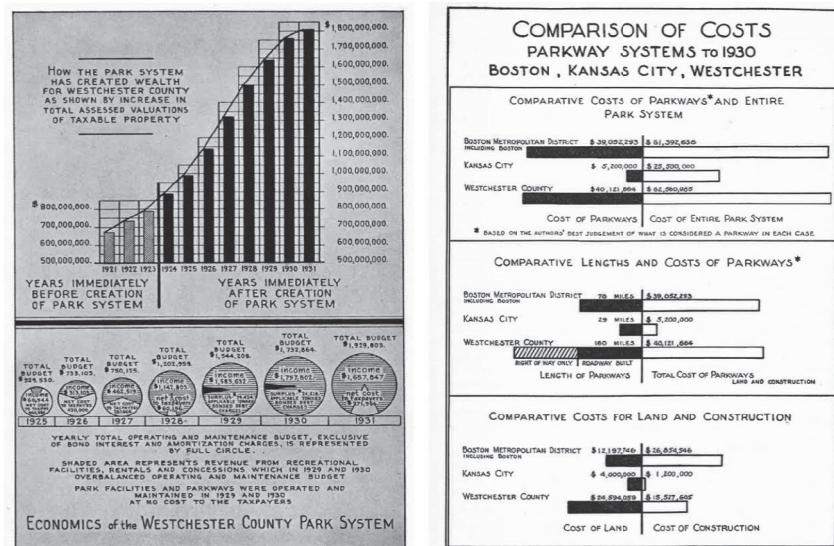
[fig41\_Nolen *Madison-Washington, D.C., Street Trees (1910)*] (Nolen 1910, 124-25) LOC



[fig42\_Nolen *Madison-Bourneville, Backyards (1910)*] (Nolen 1910, 130-31) LOC

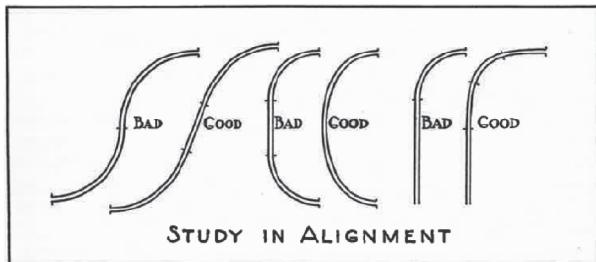


[fig43\_Second-generation cutover land, Northern Wisconsin (1939)] WSHS 105729

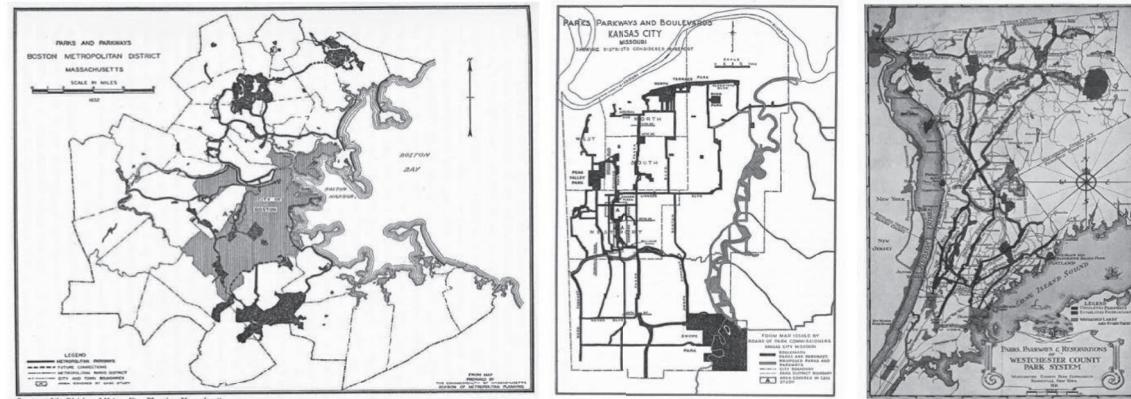


Courtesy of Westchester County Park Commission

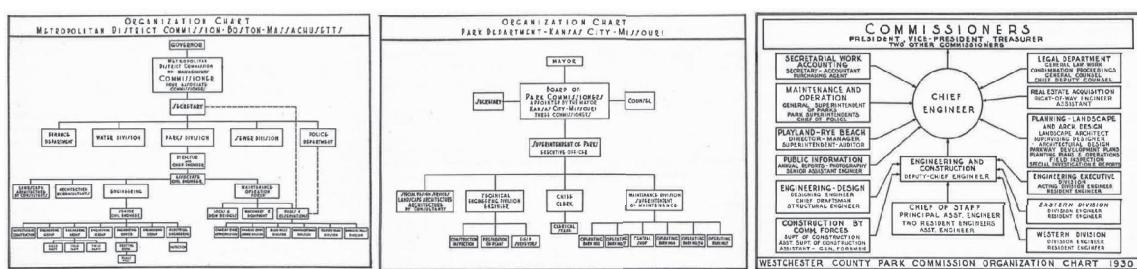
[fig44\_Nolen\_Economics of the Westchester County Park System (1937)] (right) Cost Comparison. LOC



[fig45\_Study in Alignment (1937)] Heuristic comparison of road geometries. LOC

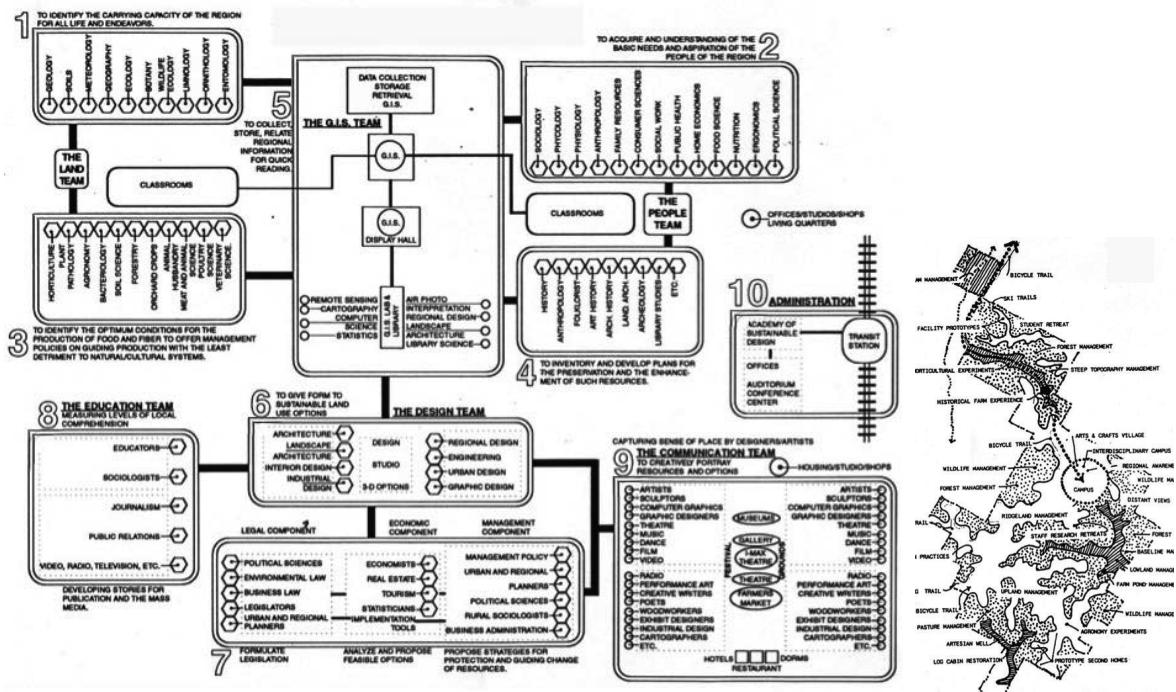


[fig46\_Boston, Kansas City and Westchester park systems (1937)] Territorial figure comparison. LOC



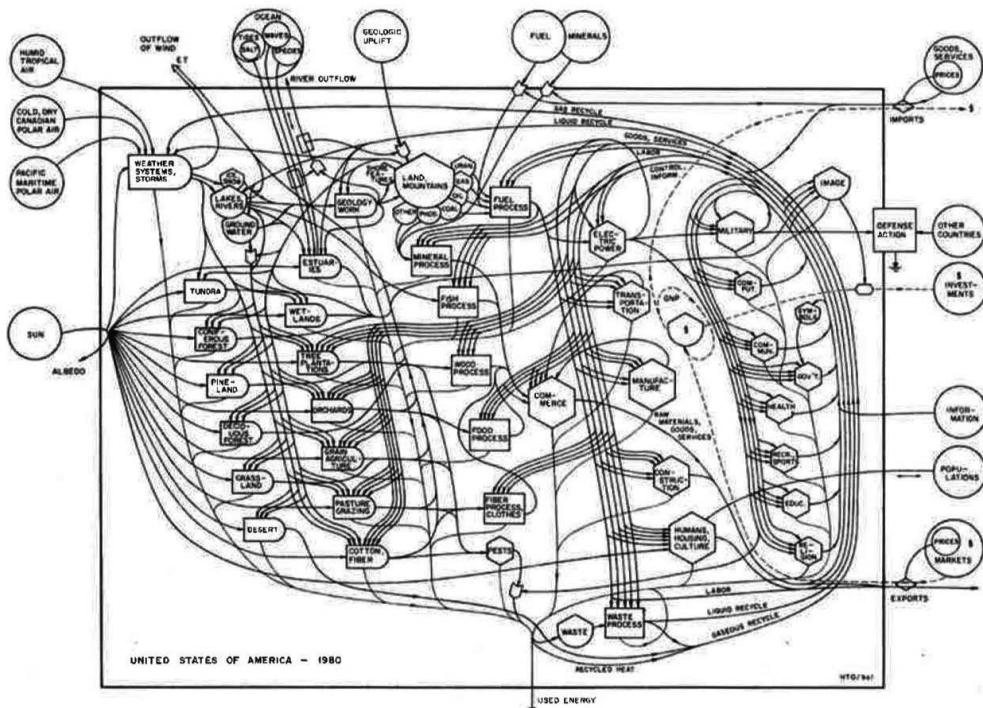
[fig47\_Nolen\_Boston, Kansas City, and Westchester organization charts (1937)]

Comparative structure of regional park systems administrative organizations. LOC

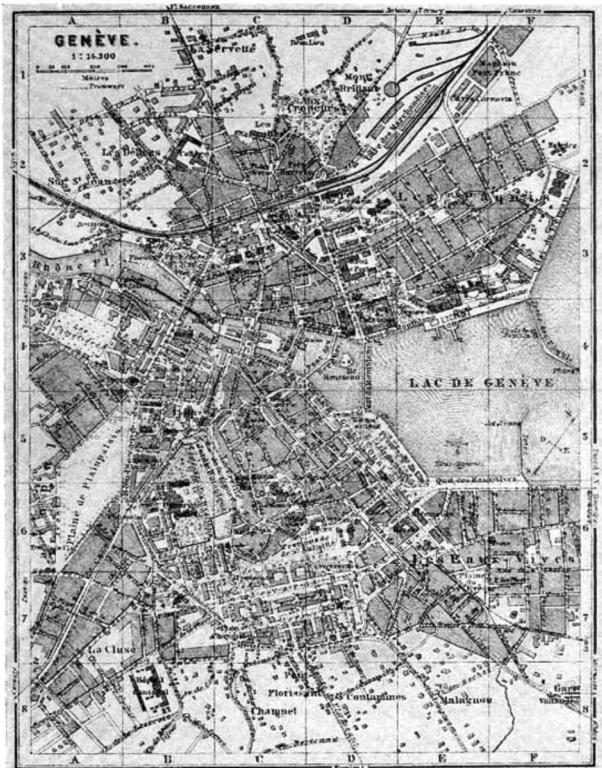


[figs48/49\_Lewis\_Administrative Organization for Regional Design Team (2001)]

Rural Core Laboratory, the team structure is explicitly related to the site. *Images: the author with Philip H. Lewis*

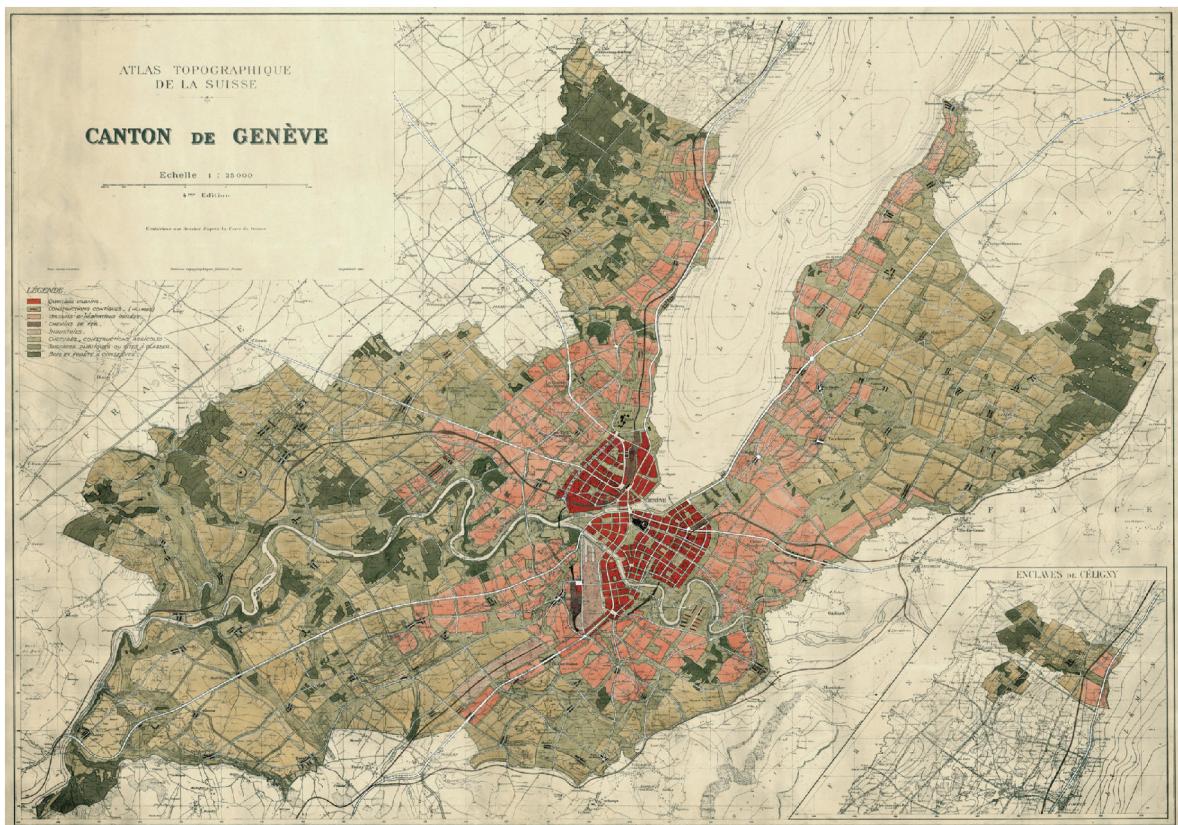


[fig50\_ Odum\_Ecology as Urbanism, Urbanism as Ecology (1994)] An abstract historic model of spatial organization and interaction showing the economy and ecology of the US in 1980, and illustrating the scalability of regional ecologies as open and permeable systems through energy and currency flows. (Howard T. Odum, *Ecological and General Systems*, 23-7). *Image: University Press of Colorado*

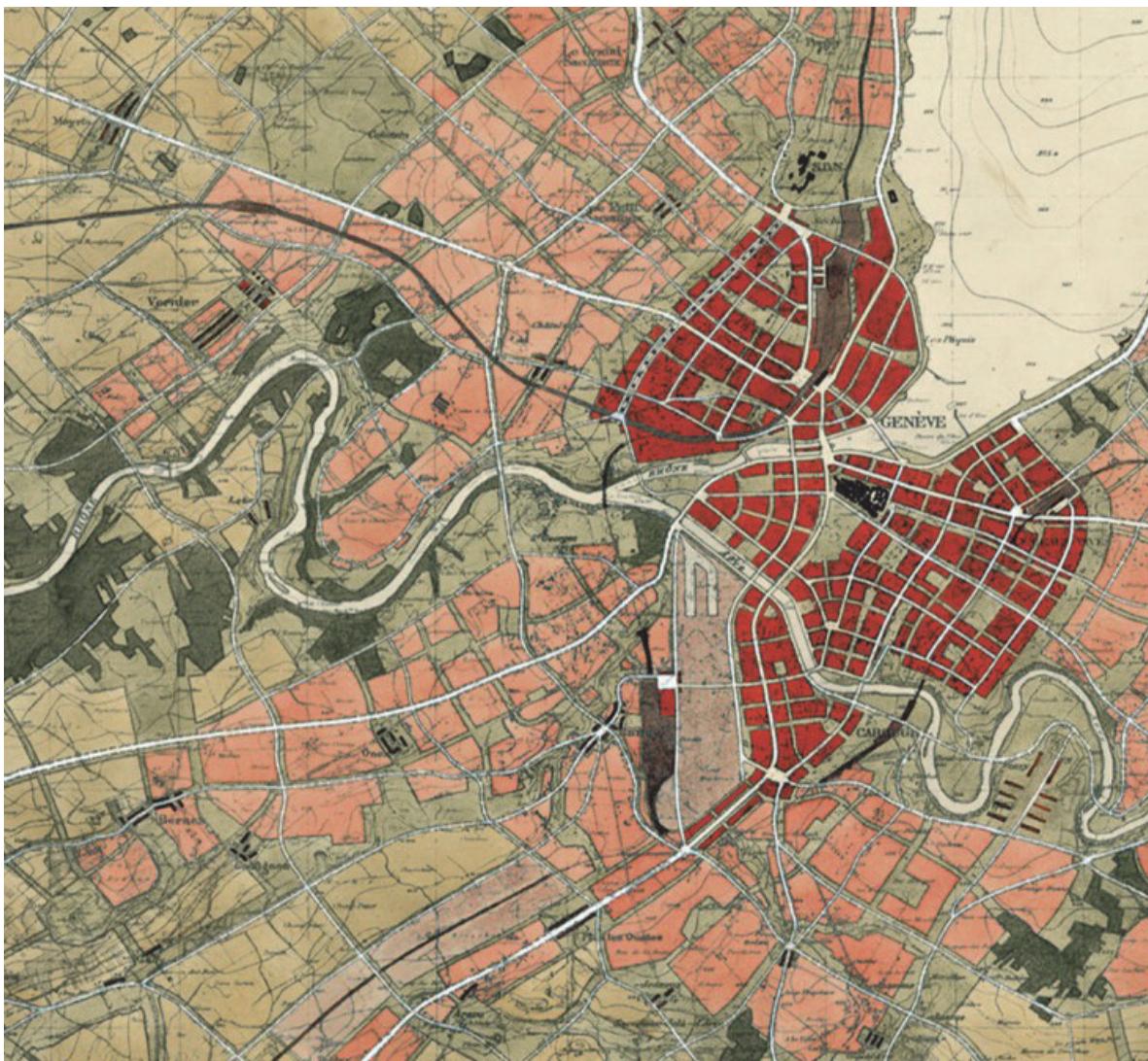


*'The City of Geneva is in many respects a model for Madison. Note the organization of streets, the location of public buildings and open spaces, the public use of the lake front.'*

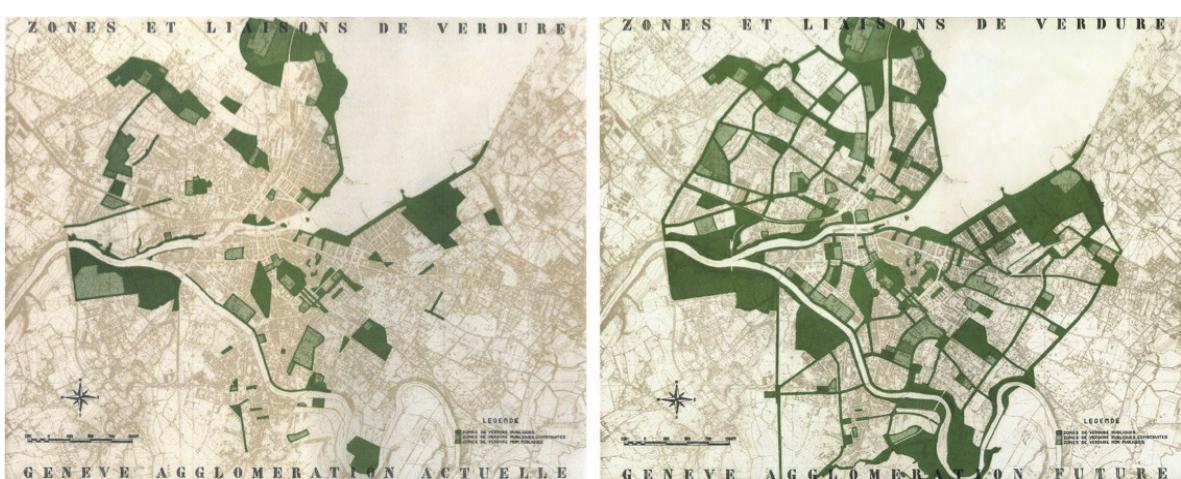
[fig51\_ Plan of the City of Geneva, Switzerland (1908)] (Nolen 1911, 145) LOC



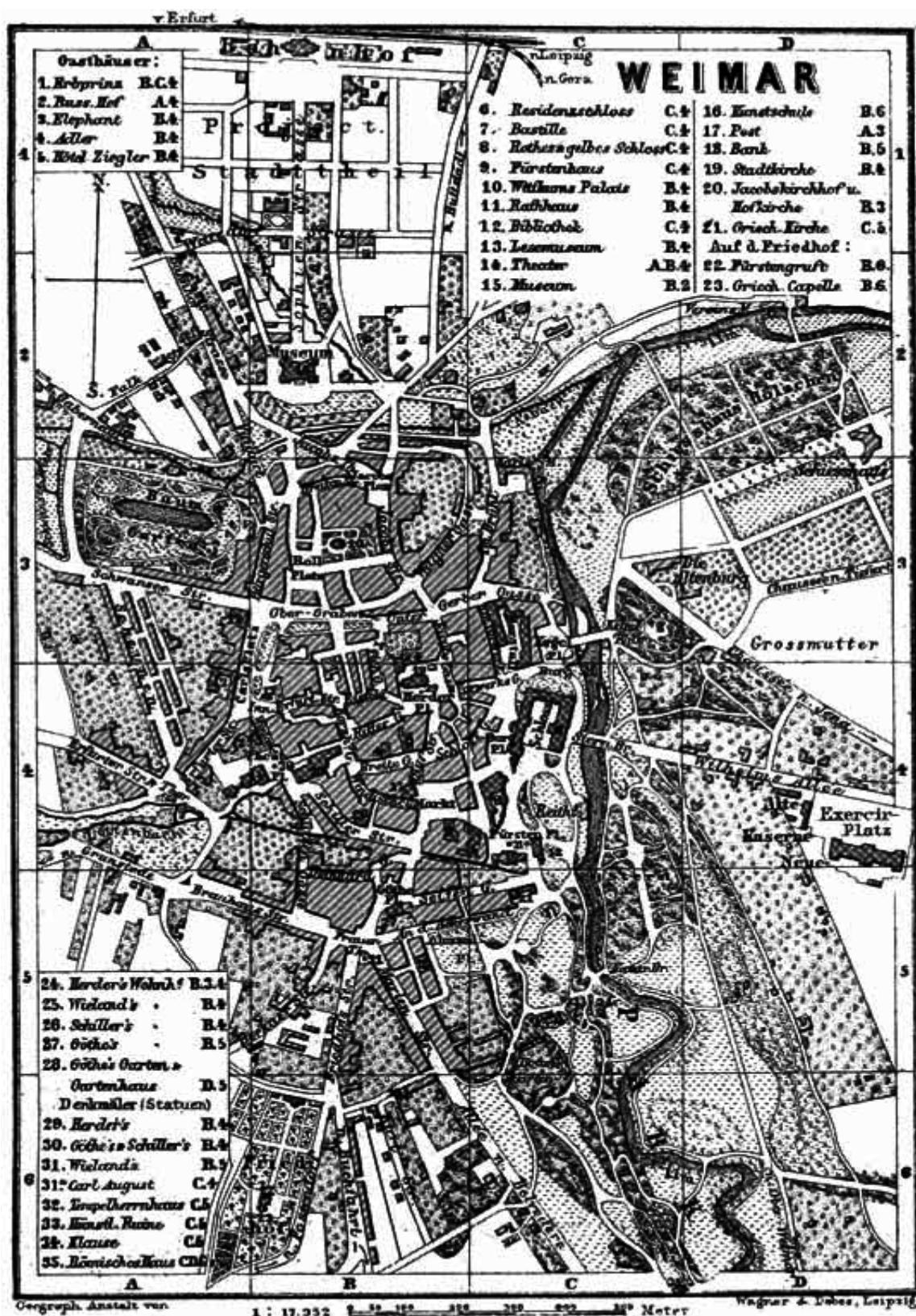
[fig52\_A.Bodmer, *Canton de Genève*, 1936] The park system corridors proposed in Bodmer's plan are referred to in French as *coulée verte*. DAEL 4623.600



[fig52 detail\_A.Bodmer, Canton de Genéve, 1936] This plan is among the most complete realizations of Olmsted's stated 1860 ambition that one's grandmother could walk with one's child 'from neighborhood garden...to unspoiled countryside' without leaving the park system's continuous 'green grid'.



[fig53\_Geneva Regional Plan, park system *Actuelle/Future* (1948)]  
Zones et Livisons de Verdure, Genéve Agglomeration. DAEI 1948.96



[fig54\_Weimar, Germany, the Capital of Saxony (1906)]

It has a population about equal to that of Madison. Its public buildings, museums of art and music, its schools, parks and city plan are models for a small city. (Nolen 1911, 160) LOC

1916\_Manning, Hegemann, and the National Conference of City Planning

We have touched several times on the ideological battle between ‘formal’ and ‘informal’ design approaches, and subsequent processes of negotiation and their intermittent reconciliation. The American Institute of Planners was an early interdisciplinary organization that explicitly facilitated such reconciliation and advocated for this dual agenda. Building on the momentum of the McMillan Plan in 1902, the first *National Conference on City Planning* was organized in Washington, D.C. in 1909 – the same year Patrick Geddes’ associates founded the first school of planning in the world in Liverpool and called the program Civic Design – and this first conference was convened as a hearing before the Committee on the District of Columbia of the United States Senate during the second session of the 61<sup>st</sup> US Congress.<sup>317</sup>

The conference featured addresses from engineers, military brass and politicians as well as designers and planners – among whom the nucleus of an informal/formal professional alliance were present. Frederick Law Olmsted Jr. joined from Brookline, and spoke to ‘the scope and results of city planning in Europe’; John Nolen of Boston spoke to ‘what is needed in American city planning’; Andrew Wright Crawford of Philadelphia spoke to ‘what has been accomplished in city planning in Philadelphia’, Charles Mulford Robinson from Kansas City spoke to ‘city planning in Denver and Los Angeles’, and George Hooker gave a ‘report on city planning in Chicago’.<sup>318</sup>

The following year a second conference was held in Rochester, New York, called at the invitation of Charles Mulford Robinson and sponsored by the newly organized National Conference on City Planning (NCCP).<sup>319</sup> The governmental approval of these events and their protagonists ensured their institutional efficacy, and as NCCP’s political influence grew these conferences became vibrant annual events. Association membership rapidly expanded and a wide variety of groups endorsed and participated in the annual meetings, including the *Committee on Congestion of Population* in New York, *American Institute of Architects*, *American Society of Landscape Architects*, *League of American Municipalities*, *American Civic Association*, and the *National Conference of Charities and Corrections*.<sup>320</sup> The unprecedented success of the 8<sup>th</sup> annual meeting in 1916 led to the formalization of the American City Planning Institute in Kansas City the following year.<sup>321</sup>

This 8<sup>th</sup> annual conference was organized by the Olmsted studio’s longtime associate Warren H. Manning (1860-1938) and a youthful Werner Hegemann (1881-1936) - who in April of 1915 had escaped wartime Europe as a stow-away on a Norwegian ship bound for New York.<sup>322</sup> Warren

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<sup>317</sup> National Conference on City Planning (1909), *Proceedings of the First National Conference on City Planning*, 1967th ed. (Washington, D.C.: Government Printing Office, 1910).

<sup>318</sup> National Conference on City Planning (1909), 3.

<sup>319</sup> National Conference on City Planning (1909), ii.

<sup>320</sup> National Conference on City Planning (1909), ii.

<sup>321</sup> “A Brief History of the American Planning Association,” American Planning Association, accessed October 26, 2017, <https://www.planning.org/history/>.

<sup>322</sup> Christiane Crasemann Collins, “Werner Hegemann (1881-1936): Formative Years in America,” *Planning Perspectives* 11, no. 1 (January 1, 1996): 1–21, <https://doi.org/10.1080/026654396364907>.

Manning's role in this conference is particularly interesting to me personally, as he is the first of these lesser-known civic designers I was made aware of. When I built my house in Menomonie, Wisconsin and started my architectural practice there, I was mainly designing parks and public space projects – for example, we designed a system of pathways through Native American mounds, reconciling the presence and preservation these with the cultivation of ecological habitat and accommodating neighboring activities like golf courses, etc. After being commissioned to work on an existing Olmsted park in another city I made enquiries at the Olmsted archives, and incidentally came across material from Menomonie. It turns out that the Olmsted company had laid out the city and its parks in 1895-96, and the drawings produced then were all signed by Warren Manning (Olmsted Archive no.00082).

In Olmsted's design studio Manning was known as the firm's horticulture expert and director of planting.<sup>323</sup> Manning's biographer Robin Karson situated his protagonist historically by describing how in the 1850s avowed ruralists like Liberty Hyde Bailey, Alexander Jackson Downing, and Frederick Law Olmsted had established the idea of 'fitness' in landscape – and by the 1890s an 'aggressive strain' of Beaux –Arts inspired formalism had returned, offering 'architecturally determined landscapes to...legions of wealthy Americans':<sup>324</sup>

*By the last decades of the nineteenth century, the question of landscape style had become a subject of forceful debate in the popular and professional press. The biases of the country's leading landscape theoreticians, most of them practitioners, clustered in two general stylistic camps. The formalists advocated architecturally determined, often symmetrical spaces and a subsidiary role for plants. The informalists recommended a naturalistic approach that relied heavily on plants to establish spatial structure and character. Warren Henry Manning, who came of professional age as this stylistic debate erupted full force, joined it enthusiastically...[authoring] articles, letters, and [an] unpublished autobiography advocat[ing] a new type of distinctively American garden—a "nature" or wild garden.*<sup>325</sup>

Manning scholar Robin Karson points out that the first record of Manning's views on *nature* are found in an unpublished essay from 1906 that 'predates his work with Olmsted,' the opening sentence of which echoes both the *via negativa* and *contextualism* discourses we've traced, and parallels the ecological discourse then emerging in the design disciplines:<sup>326</sup>

*I would have you give your thoughts to a new type of gardening wherein the Landscaper recognizes, first, the beauty of existing conditions and develops this beauty to the minutest detail by the elimination of*

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<sup>323</sup> Roper, FLO: Frederick Law Olmsted, 165.

<sup>324</sup> Karson, "Warren H. Manning: Pragmatist in the Wild Garden," 114.

<sup>325</sup> Karson, 114.

<sup>326</sup> Karson, 117.

*material that is out of place in a development scheme by selective thinning, grubbing, and trimming, instead of by destroying all natural ground cover vegetation or modifying the contour, character, and water context of existing soil.*<sup>327</sup>

Manning's interests had developed steadily over the next ten years, and by the 8<sup>th</sup> annual National Conference on City Planning, for which he and Hegemann were largely responsible, the application of Manning's ideas had scaled up from private gardens to national parks. He opens on the theme of governance, addressing corruption and taking issue with the profitability of concessions held by businesses in the parks:

*What I want to bring especially to your attention is the danger that comes from village and camp sites that are existing or that are being established in the national parks and forests. You will recognize that the concessionaire and the individual will naturally take advantage of every opportunity that they can secure to pre-empt the finest points of view and scenic incidents in such a way as to prevent the general public from getting the full use and enjoyment of such places. For this reason all who are interested in such matters should endeavor to secure from the authorities in charge clearly defined plans that are made in advance of their execution and to see that such plans protect the interest of the public first, and at the same time do justice to concessionaires and others who are given special privileges.*<sup>328</sup>

Along these lines he is prompted to address the several rhythms of movement through the park systems, and the loss of calmly paced options like walking and bicycling in cases where too many concessions are made for 'pleasure drives' along parkways, which tend to become 'speedways', as park system designers had explicitly designated areas dedicated to the purpose as early as 1896.<sup>329</sup> Manning writes that 'it was in such studies that a separation of business traffic from pleasure traffic was first initiated,' and emphasizes the point with an important observation, writing "This was really the beginning of traffic regulation."<sup>330</sup>

*This widespread ramification of park systems has grown out of the study of city plans in which in the beginning parks and parkways were set aside primarily to preserve scenic beauty and to provide places for the recreation of the public...In such park systems the radial and the circumferential traffic lines are established through and around the city. I believe that these parkways must ultimately be encroached upon*

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<sup>327</sup> Warren H. Manning, "The Nature Garden" (1906), 1, University of Massachusetts.

<sup>328</sup> Warren H. Manning and Werner Hegemann, *Proceedings of the Eighth National Conference on City Planning* (New York: NCCP, 1916), 243. n. This document vis Olmsted, Hegeman, Nolan, Kessler, etc.

<sup>329</sup> Kelsey, *The First County Park System: A Complete History of the Inception and Development of the Essex County Parks of New Jersey*, 178.

<sup>330</sup> Manning and Hegemann, *Proceedings of the Eighth National Conference on City Planning*, 244.

*by the broadening of the roadways to provide more room for speedy and slow automobile traffic for pleasure and for passage between the city and the suburban homes and...for business and commercial traffic.<sup>331</sup>*

In reference to Cleveland, the city hosting the conference, Manning approached the question, characteristically, from the ecological side – calling for the conservation, preservation or cultivation of mature forest habitats on steep slopes – while making note of social and economic considerations, in an effort to resolve ‘the question of the land that should be set aside for public use.’<sup>332</sup> Manning gives several local examples:

*...all over the country landscapes having unique beauty...ought to be saved, and you will often find that one tree or a group of trees is the feature that is essential to the beauty of a living landscape picture. The acquirement of a single tree may be all that is necessary. At Euclid Heights...is a strip of land on the bluff face covered with trees. The park road from University Circle...has great banks on either side, covered with beautiful foliage which I understand are owned by individuals. Steep banks like these ought to be owned by the city, because they give protection to the public against the houses above and also give protection to the houses above from the public below. One of the features of future city planning will be the taking of little strips where you can save or establish a growth of foliage that will shut out the view of certain groups of buildings from the buildings above. These strips may be too steep to use, but not too steep to look at. All this means a high public spirit. The time is going to come when we cannot go to such vast expense in buying land for city parks and parkways as we have been doing, and by so doing benefit tremendously the adjacent owners at the expense of the city. The time has come when the owners ought to give the land, and in many cases they are doing it. They can usually give one-tenth of their land to the park system which will include what is of least use for building purposes, and thereby increase the value of the remainder. You must remember that the gift of land is a permanent memorial. Any of you who have been upon the Appian Way in Rome where the mighty Roman Emperors built their everlasting memorials of stone will realize that such memorials do not last forever. They are mostly heaps of dust and ruin now, but the land is still there. Any one of you ought to give land if you can afford to, as part of a logical park system, because nothing will give so much pleasure to so many people or last so long as a memorial.<sup>333</sup>*

Manning’s statement regarding the role of parks as intergenerational memorials, places of memory imbued with social values, recalls the distinction between ‘monuments’ and ‘memorials’ that was soon to take on renewed importance in the great debate on ‘monumentality’ - and play a significant role in bringing about the end of *civic design*, and the beginning of the era of *urban design*. But at that time this

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<sup>331</sup> Manning and Hegemann, 244.

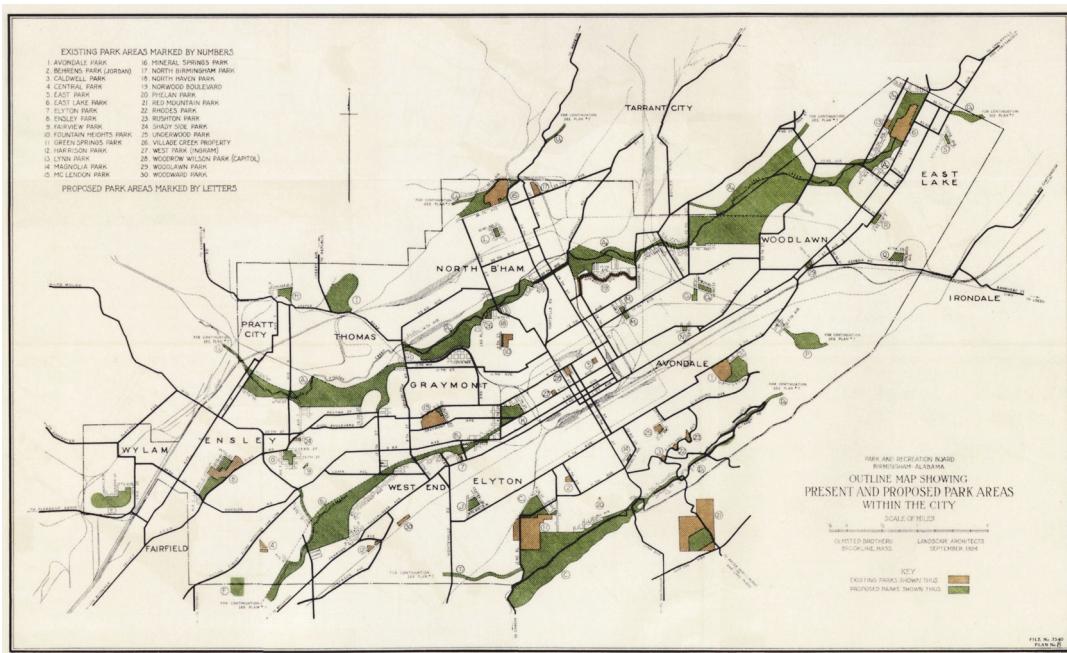
<sup>332</sup> Manning and Hegemann, 246.

<sup>333</sup> Manning and Hegemann, 247–48.

discourse was maintained in a relatively collegial atmosphere, as Manning's collaborator Hegemann attests in the conference's prescient closing statement, optimistically issuing the call for a disciplinary 'inventory of opposites':

*This conference brings together all the many varied and often even antagonistic interests, the harmony of which is necessary to produce a satisfactory city plan.*<sup>334</sup>

Manning's own plans were to become gradually less formally monumental and distinctly more procedural and *ad-hoc* in character – all the more receptive to community participation and input from civic organizations – as his 1925 park system plan for Birmingham, Alabama illustrates.



[fig55\_John Nolen, *Birmingham Park System* (1925)]

Nolen's plan presents an early dual nature/culture network consisting of park system and road system. BPL

His collaborator Hegemann, whose thought is equally important if more broadly known, goes on to give a specific example

*I was present during a discussion in which...there was some protest against the methods advocated by Mr. Thomas Adams...[who] was accused of indulging in somewhat autocratic ideals, as if he wanted good city planning ideas handed down from above, from a government and from administrators better informed than the almighty plain citizen voter. For such unwarranted leadership, it was hinted, the democratic American*

<sup>334</sup> Manning and Hegemann, 254.

*citizen could never stand, but would accept improved conditions only if called for by the sovereign mass of the people, and—so I assume—if passed upon by his majesty, the Boss...*<sup>335</sup>

Recalling Jeffersonian ideals of public education and participation in self-governance, Hegemann elaborates further insightful comparisons of Prussian and American planning – addressing forestry and soils and water management – and concluding with a description of ‘Haussmann’s disastrous influence’<sup>336</sup>

*I suppose everyone present, occasionally, when committee meetings draw out, envies heartily Haussmann's omnipotence, strong democratic ideals notwithstanding... Let me, therefore, say a few more words about this idol. You know what happened at one of Haussmann's earliest audiences with his master. Napoleon had just arranged for a very democratic committee of experts to discuss the proposed transformation of Paris. Mr. Haussmann had been invited to attend its first meeting, and after the meeting, he reports in his autobiography, the Emperor asked him, "Well, how do you like our committee?" and Mr. Haussmann said, "Well, Majesty, I think there is a tendency with us French, as soon as there are more than two together, to produce an endless amount of talking. I fear we shall have to cut the committee down." The Emperor replied, "Do you mean to a committee of two?" "Yes, your Majesty as chairman, and your humble servant as secretary." And this plan was carried out, too. Now, the admirers of autocracy, I think, ought to agree that the city planning produced under that efficient system, judged in the light of present experience, or even in the light of the discussion of Haussmann's own contemporaries, ought not to be admired.... Of course, we have to be thankful to Mr. Haussmann, because really he hasn't destroyed all of Paris. He destroyed just about one-half of it only, but he spared many of the great glories of old Paris which made the city dear to every city planner... He was bitterly criticized for destroying part of the Luxembourg gardens... It is true he levelled almost everything that was left of gothic Paris, but he left the great Cathedral of Notre Dame and several other churches. So Haussmann really deserves praise. Why? His power was absolute, he could have destroyed everything, but he knew how to control himself. However, in praising him let us not carelessly assume that he has created what he did not destroy.*<sup>337</sup>

Hegemann’s critical assessment of Haussmann was more recently echoed by urban sociologist Richard Sennett, who wrote in *The Fall of Public Man* (1974):

*...in the remaking of the city by Haussmann in the 1850s and 1860s the intermixing of classes within districts was reduced by design. Whatever heterogeneity occurred spontaneously in the division of private houses into apartments in the first half of the century was now opposed by an effort to make neighborhoods*

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<sup>335</sup> Manning and Hegemann, 254.

<sup>336</sup> Manning and Hegemann, 258.

<sup>337</sup> Manning and Hegemann, 257–58.

*homogeneous economic units: investors in new construction and renovation found this homogeneity rational in that they knew exactly what kind of area they were putting their capital into. An ecology of quartiers as an ecology of classes: this was the new wall Haussmann erected between the citizens of the city as well as around the city itself.*<sup>338</sup>

Hegemann goes on to compare the unrelenting axiality of Haussmann's built projects with 'another stream of city planning thought' that had begun, he says, with 'the memorable transformation of the fortifications of Vienna, beginning 1858':

*The artistic disappointment about some of the effects of this great work made Camillo Sitte, Theodor Goecke, [and] J. Stuebben...give much study to the medieval cities. They discovered many of their beauties, among others, the beauty of curved streets, and curved streets went all over...It [became] sufficient for many an ardent critic to look at a plan, and if he saw a straight street in it, his verdict "No good" was ready; wasn't he sure the plan was made by one of those hated surveyors, engineers or sewage men like Haussmann or his colleague in Berlin? Instead of the straight lined, formal garden, now the naturalistic, romantic garden conquered the shaping of the city blocks to an extent that, as one of the younger critics said, the people had to bend their curtain rods to keep them in line with the curved streets.*<sup>339</sup>

Having shown this learned predisposition against axial structure to be reactionary, Hegemann addresses similarly shallow reactionary arguments against including railroads in the urban plans, highlighting the success of one of his NCCP colleagues in finding 'the proper place' for railroads in the city:

*When railroads finally had to be admitted into the city they were required at least to go underground at an extravagant cost and thus keep out of sight. This anti-railroadian attitude is what we consider to-day one of the old-fashioned and wrong ideas. But the fight against the vestiges of this idea is still hot. We have with us Mr. G. E. Hooker, who practically, if I understand him right, puts almost his life fight into getting the railroads into their proper place in the city plan.*<sup>340</sup>

We recall George Hooker as among the founding members of the NCCP, advocate of Ebenezer Howard's *garden cities*, and Frank Lloyd Wright's colleague – it was exactly these characteristics of railroad integration that Wright responded to in his famous 'non-competitive entry' to the competition Hooker had organized in his capacity chairperson of Chicago's City Club in 1913. This railroad and street car integration in Wright's City Club designs of 1913 was maintained and expanded in his later

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<sup>338</sup> Richard Sennett, *The Fall of Public Man* (Cambridge Eng.: Knopf, 1976), 134.

<sup>339</sup> Manning and Hegemann, *Proceedings of the Eighth National Conference on City Planning*, 259.

<sup>340</sup> Manning and Hegemann, 259–60.

plans for Madison and other cities, and those 1913 plans are the first direct precedent for Broadacre City, in which Wright also advocated for the integration of a full spectrum of mobility options – including pedestrians, bicycles, horseback riding, water transport, railroad, automobile and air travel – within regional rural urban plans.<sup>341</sup>

Hooker's contribution to the conference included his incisive observations about urban agriculture and the need for cities to provide habitat for life 'suitable for children to be born and reared in' as a basis for cultural 'arts' and 'true patriotism':

*City planning means better food for the urban community by facilitating its transport from farm or truck garden, warehouse or market, to the kitchen, and by increasing the number of home gardens. A great nation must be a well-nourished nation. The food question is of national moment. The most urgent of all national needs is for the oncoming generation. Generally speaking our cities are not conceived, planned or maintained as fit places for child life. City planning seeks to readjust them so that they shall be suitable for children to be born and reared in them... City planning tends to increase that precious element, the initiative of the population. Which man would have more of the spirit of enterprise and imagination, one who had been reared in cramped and sordid surroundings, or one who as a boy had lived in a cottage with grounds where he might dig and plant and learn the habits of flowers and birds and try original experiments? City planning means a more resourceful people, and should for that reason be an object of national policy... The physical ennoblement of cities is an art which has been throughout history and will continue to be an encouragement to true patriotism.*<sup>342</sup>

That these NCCP conference participants saw themselves as part of a movement lends greater poignancy to the projects that follow. The proceedings report closes with the list of persons responsible for the Ninth Conference, planned for Cleveland in 1916, an Executive Committee suggestively including their diverse expertise: Frederick Law Olmsted (Fellow American Society of Landscape Architects, Brookline, Mass., Chairman); Nelson P. Lewis (Chief Engineer Board of Estimate and Apportionment, New York City, Vice-chairman); George E. Hooker (Secretary, City Club, Chicago); Andrew Wright Crawford Esq., (Philadelphia); John Nolen (Landscape Architect, Cambridge, Mass.); Edward H. Bennett (Consultant in City Planning, Chicago); George E. Kessler (Landscape Architect, St. Louis, Mo); Henry C. Wright (Landscape Architect, New York City); Alfred Bettman, Esq., (City Planner, Cincinnati).

Additionally the executive committee included the Secretary and Director of the National Housing Association in New York City, the President of the Department Taxes and Assessments in

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<sup>341</sup> Frank Lloyd Wright, *The Disappearing City* (New York: William Farquhar Payson, 1932); Wright, *When Democracy Builds*; Frank Lloyd Wright, *The Living City* (New York: Horizon Press, 1958).

<sup>342</sup> Manning and Hegemann, *Proceedings of the Eighth National Conference on City Planning*, 269.

New York City, several city engineers and architects from California, the Town Planning Advisor for the Commission of Conservation in Ottawa, Canada, the Chairman of the National Association of Real Estate Exchanges in Fort Wayne, Indiana, and the Secretary of the American Civic Association in Washington, D. C.<sup>343</sup> The General Committee has a further 48 members, among whom Allan B. Pond and O.C. Simonds from Chicago, Henry Wright from St. Louis, Charles Mulford Robinson from Rochester, New York, and Arthur C. Comey from Cambridge, Massachusetts, are all recognizably important figures in their own right.<sup>344</sup>

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<sup>343</sup> Manning and Hegemann, 273–74.

<sup>344</sup> Manning and Hegemann, 275.

### *1927\_Olmsted's Los Angeles*

In 1927 the Los Angeles Chamber of Commerce commissioned the Olmsted studio, then run by F.L. Olmsted Jr. (1870–1957), to design a regional park system. Olmsted, Jr. undertook the project in association with the planner Harland Bartholomew (1889–1989), and in 1930 they published a report titled *Parks, Playgrounds and Beaches for the Los Angeles Region*.<sup>345</sup> [fig56\_los angeles regional park system] The L.A. Chamber of Commerce was a powerful business lobby, described by regional historians as ‘the most powerful commercial body in the American West, if not the nation,’<sup>346</sup> and their intention in commissioning the work is understood to have been primarily economic in nature, using ‘large-scale planning as a means for achieving the city profitable.’<sup>347</sup> However, even before the designers had completed the report, the Chamber realized that it was far more ambitious than they had intended, and they themselves soon buried the report, fearing that the ‘child had become the parent.’ As Los Angeles Times journalist Christopher Hawthorne has written:

*Perhaps, in the end, [the plan] was too impressive for its own good. By February 1929...the chamber's board of directors had split over the wisdom of implementing it...[and] after the plan was officially presented in 1930, it garnered almost no public attention.*<sup>348</sup>

The response, from both public and civic associations, was ‘a resounding silence’.<sup>349</sup> No follow-up stories were published in local papers, and there is no evidence of any further discussion of the plan in the official minutes of city or county agencies, nor in those of committees such as the Regional Planning Commission, the Los Angeles Parks Department, and the city’s Playground and Recreation Department.<sup>350</sup> The project has more recently received significant scholarly attention, including Robert Smithson’s *Frederick Law Olmsted and the Dialectical Landscape* (1996),<sup>351</sup> Mike Davis’ *How Eden Lost Its Garden* (1998, 2004),<sup>352</sup> and particularly Hise and Deverell’s *Eden By Design* (2000), in which the original 1930 report is reproduced in its entirety.<sup>353</sup>

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<sup>345</sup> Frederick Law Olmsted Jr. and Harland Bartholomew, *Parks, Playgrounds and Beaches for the Los Angeles Region: A Report Submitted to the Citizens' Committee on Parks, Playgrounds, and Beaches* (Los Angeles: Los Angeles Chamber of Commerce, 1930).

<sup>346</sup> Greg Hise and William Francis Deverell, *Eden by Design: The 1930 Olmsted-Bartholomew Plan for the Los Angeles Region* (University of California Press, 2000), 32.

<sup>347</sup> Hise and Deverell, 10.

<sup>348</sup> Christopher Hawthorne, “Reading L.A.: The Olmsted Brothers Plan and What Might Have Been | Culture Monster | Los Angeles Times,” *Los Angeles Times*, November 11, 2011, <http://latimesblogs.latimes.com/culturemonster/2011/11/reading-la-the-olmsted-bartholomew-plan-and-what-might-have-been.html>.

<sup>349</sup> Hise and Deverell, *Eden by Design*, 4.

<sup>350</sup> Hise and Deverell, 4.

<sup>351</sup> Robert Smithson, “Frederick Law Olmsted and the Dialectical Landscape,” in *Robert Smithson: The Collected Writings*, ed. Jack Flam, Revised ed. edition (Berkeley: UC Press, 1996), 157–71.

<sup>352</sup> Mike Davis, “How Eden Lost Its Garden,” in *Ecology of Fear: Los Angeles and the Imagination of Disaster* (New York: Vintage Books, 1998), 59–91.

<sup>353</sup> Hise and Deverell, *Eden by Design*.

In the last of these, *Eden By Design*, the authors note that the plan's failure 'was not due to some intrinsic flaw in the plan, nor was it due to a lack of public will, and it certainly was not happenstance.'

*No, what happened in this case was more deliberate, more planned. The Chamber of Commerce and its allies effectively limited circulation of the report and discouraged public discourse.*<sup>354</sup>

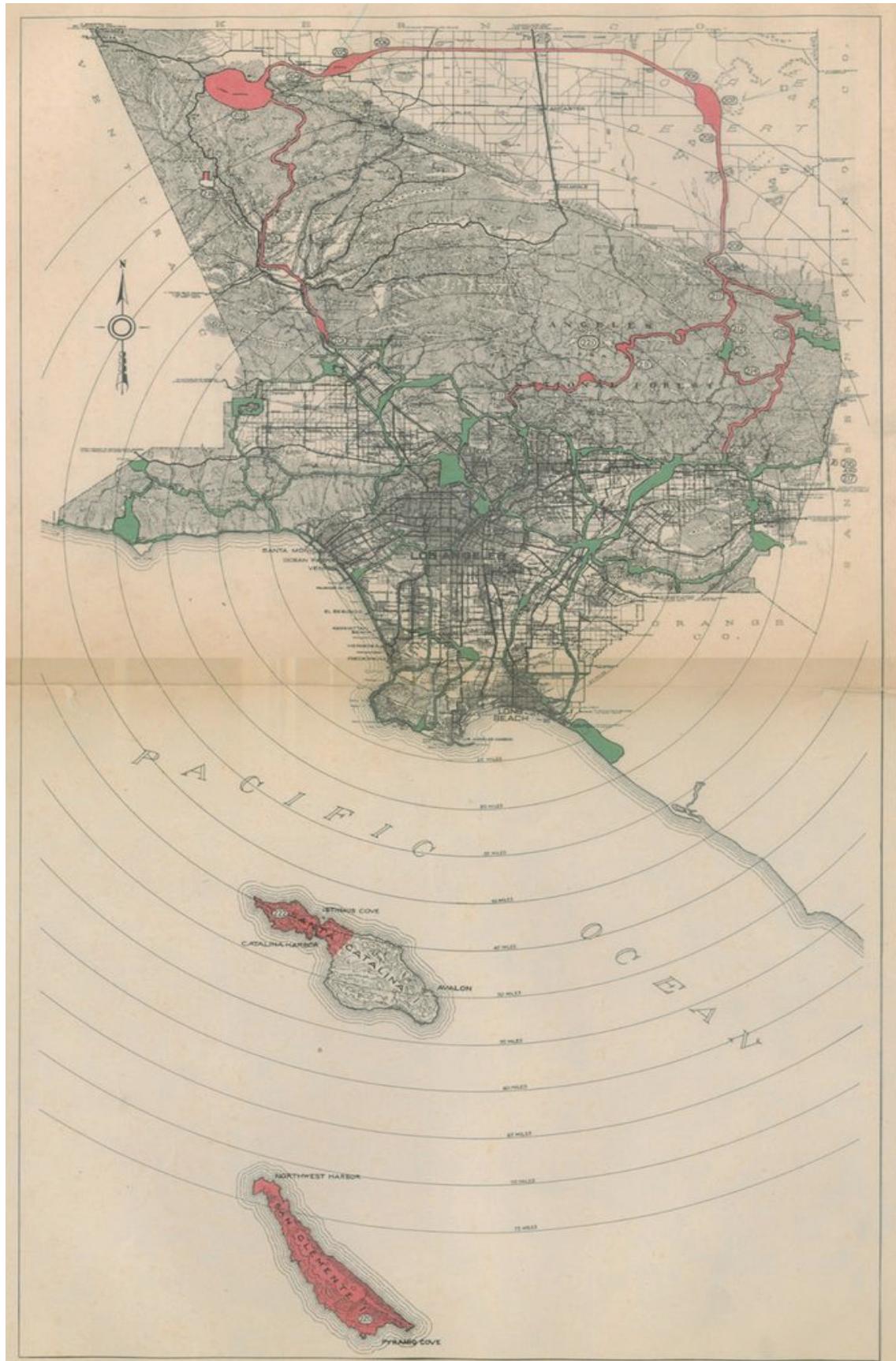
Why this was the case is not entirely clear. In the end, Deverell and Hise conclude that the chamber's leadership likely became concerned that the report was a more explosive, more powerfully persuasive a document than they'd bargained for, and that 'it might turn into something they wouldn't be able to control, politically or otherwise.'

Olmsted and Bartholomew's regional park system for Los Angeles suffered a fate of neglect similar to the short-lived *California Cycleway* of 1900. Had the plan been carried out, it could have made Los Angeles one of the most beautiful and livable regions in the world – its waterfront beaches, residential foothills and forested mountains stitched together with functional ecological corridors – enabling active mobility throughout the city and region. *[fig57\_los angeles detail]* Within the vast urban areas of Los Angeles a comprehensive integrated park and road network would have revitalized the region's scenic qualities and advanced an array of ecological, social and economic purposes. Nevertheless, the vision it advocated has been rediscovered not only by scholars, but also – thanks largely to their scholarship - by subsequent generations of designers and communities, as we will see in the next chapter.

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<sup>354</sup> Hise and Deverell, 7.

<sup>355</sup> Hise and Deverell, 8.



[fig56\_Olmsted\_Los Angeles Regional Park System (1930)] (Olmsted 1930, plate 42) LOC



[fig57\_Olmsted\_Los Angeles Regional Park System, detail (1930)] (Olmsted 1930, plate 46) LWA

### *1942\_Wright's Lloyd Jones Valley*

As we have briefly noted earlier, in 1941 Frank Lloyd Wright founded the *Taliesin Square-Paper* as a platform to express his political views. Published with the byline ‘A Nonpolitical Voice from our Democratic Minority,’ this was one of several ongoing series authored and printed by apprentices of the Taliesin Fellowship, in collaboration with Wright, at Taliesin Press since 1934. Again, Wright was an ardent pacifist, supporting several Taliesin apprentices imprisoned during WWII as conscientious objectors, and the majority of Wright’s published work from this period is dedicated to the expression of antiwar sentiments, both before and after the United States entered the war later that same year in December of 1941. As Kenneth Frampton has noted:

*He was touched quite personally because of the apprentices under his care at Taliesin who were drafted. He instinctively despised conscription. Some apprentices enlisted; others stayed behind and ran the farm on farm deferments. Just a few refused to go to war as a matter of principle and were sent to prison.<sup>356</sup>*

In 1939 there had been 36 apprentices at Taliesin, and by the end of the war there were barely a dozen. Nineteen apprentices had left to fight in the war, and five were imprisoned as conscientious objectors.<sup>357</sup> Wright supported and actively encouraged the apprentices who were convicted of draft evasion and sent to Sandstone Prison in Northern Minnesota. In December of 1942 he wrote an open letter to the judge who had convicted apprentice Marcus Weston, reading in part:

*As for conscription, I think it has deprived every young man in America of the honor and privilege of dedicating himself as a free man to the service of his country...Were I born forty years later [than 1867] I too should be a conscientious objector.<sup>358</sup>*

Wright repeatedly visited the prison himself, spending time with apprentices Marcus Weston - who was the son of Wright’s longtime friend and Taliesin’s original carpenter William Weston - and John Howe - who was Wright’s ‘pencil-in-my-hand’ and the main draftsman and in the Taliesin studio. He also prepared, delivered and published addresses to the entire prison, where the majority of inmates were also conscientious objectors.<sup>359</sup>

After the war the number of apprentices rebounded, and for several years there were over a hundred of them at Taliesin - where farm buildings were converted into housing, and the farming

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<sup>356</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 4:16.

<sup>357</sup> Wright, 4:110.

<sup>358</sup> Wright, 4:105, *An Open Letter to Judge Patrick Stone from Frank Lloyd Wright*, 18 December 1942.

FLLW\_AV#2401.262. Wright later joked: “The capitalism, net, of our nation, is only individualism gone rank or riot, producing either isolationist, authoritarian or unconscientious objectors.”<sup>358</sup>

<sup>359</sup> Wright, 4:106–08, *Address at Sandstone Prison*.

operations moved to neighboring farms belonging to members of the Fellowship. It was at this moment that Wright undertook to design, pro-bono, ‘A Regional Highway and Park System’ for his ancestral Lloyd Jones Valley, where Taliesin is based. This previously unpublished project explicitly implements his Broadacre City concepts at home, as it were, and I argue that the Lloyd Jones Valley is the closest thing we have to a built version of that visionary project.

Since his childhood on his uncles farm there he’d seen the valley transformed; his first architectural experience came working with Chicago architect Joseph Silsbee on his family’s Unity Chapel there; his first independently built work was the Hillside Home School complex for his aunts; he’d dammed the stream and recontoured the hills when he built Taliesin; and from founding the Taliesin fellowship in 1932 they’d implemented many of the *via negativa* principles he advocated for in the Broadacre City panels. Like the panel’s statement ‘NO DITCHES’ they had also filled in the ditches; like the statement ‘NO POLES – NO WIRES IN SIGHT’, they’d taken down the power and telephone poles and buried the lines themselves.

The pretext given Wright to once again advance this long term Lloyd Jones Valley project with ‘A Regional Highway and Park System’ was a commission for a modest bridge design from the Wisconsin State Highway Commission in the spring of 1947. [fig58\_wright\_park\_systems\_view] It is not clear how this commission came to Wright, but what we do know is that the Highway Commission had undertaken to prepare plans for a new bridge over the Wisconsin River between its south bank near the Taliesin campus and Spring Green, Wisconsin – the nearest city, just a mile to the north.<sup>360</sup> Wright was prompted to prepare a counterproposal that he designed as a cantilevered construction in reinforced concrete, which he described as follows:

*The type is called the Butterfly because the wingspread of the spans concentrates the load upon a deep central girder economical up to spans of 200 feet. The low sweeping arches become an asset to any landscape...<sup>361</sup>*

Having developed the bridge design Wright prepared a set of presentation drawings, including a sheet dedicated to structural calculations bearing the title, ‘Regional Development with Highways and Park Systems’ and labeled ‘proposed by the Frank Lloyd Wright Foundation,’ he evidently presented the work to the Wisconsin Highway commission, but they rejected the highway bridge design – as well as the park system proposal - erecting a standard steel frame bridge instead.<sup>362</sup>

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<sup>360</sup> Bruce Brooks Pfeiffer, *Frank Lloyd Wright: Complete Works, Vol. 1, 1885-1916*, ed. Peter Gossel, Box edition (Köln: Taschen America, 2011), 119.

<sup>361</sup> Frank Lloyd Wright, “The Butterfly Wing Bridge,” *The Architectural Forum*, January 1948.

<sup>362</sup> Bruce Brooks Pfeiffer, *Frank Lloyd Wright: Complete Works, Vol. 3, 1943-1959*, ed. Peter Gossel, Box edition (Hong Kong: TASCHEN America Llc, 2009), 119. n. Pfeiffer reports that Wright later proposed the same bridge design for a crossing of the Wisconsin River at Echo Point, near the Wisconsin Dells, and said that he would charge no fee. The State Highway Commission again rejected the offer. A year later, the existing bridge near

Nevertheless, the ‘butterfly’ structural design first posited in this modest project was taken up again two years later and developed into the dramatic bridge Wright designed for San Francisco Bay – a structural and conceptual *tour de force* featuring dedicated bicycle and pedestrian routes, two-way railroad and streetcar tracks (stacked above one another along the central core) and six lanes for automobile traffic. The central feature of the design is a park – suspended high above the bay at the point where the bridge is highest, with ships passing below. *[fig59\_bay\_bridge\_view]* Like the little prince’s ‘snake that swallowed an elephant’, the ‘missing link’ figure of the bridge ingests the park to deliver civic values – even basic ecological functions – to this unlikely archipelago of a park.  
*[fig60\_bay\_bridge\_missing\_link]*

That much of the story is pretty well understood – but in the course of my research I found that along with the familiar drawings for the first ‘butterfly bridge’ project the folder also held additional drawings dedicated to a regional park system design that has never been published. *[fig61\_wright\_park\_systems\_plan]* Several answers are provided by the drawings, which provide the first evidence for the origins of numerous State Highway Commission projects that Taliesin Architects subsequently produced from the 1960s to the present. Through several sketch iterations, Wright had designed a park system intended to provide pedestrian, bicycle and horseback access throughout the valley - leading north into the neighboring town of Spring Green, east and west along the river, and deeper into the valley to the south. Taking the most complete of these colored pencil drawings, we see Land Owned by the Frank Lloyd Wright Foundation or Members Thereof<sup>P</sup> as a figure shaded in deep green, adjoining the bend of the river in pale blue, while parks are shown in light green, and proposed changes are overlaid with in deep green diagonal hatching.

Wright’s experience with the park systems of his conservation-minded friends Jens Jensen and Dwight Perkins is evident here – the largest shaded area of the plan is labeled ‘Wild Life Sanctuary Preserve: National or State Wild Life Conservation,’ and the plan provides continuous ecological buffer zones along the river, in which areas are labeled as ‘lowland forest’, ‘swamp woodland’, ‘grass marsh’, ‘sedge marsh’ and ‘sand flats’. The plan likewise details the railroad corridor and illustrates how its bridge over the river relates to the proposed ‘butterfly bridge’, of which we see there were actually two, intended to be sited in two locations – crossing the river both east and west of Spring Green – while specifying ‘Existing Bridge To Be Removed’ and vacating the site the ‘butterfly bridge’ has historically been understood to have been intended for. Finally Spring Green’s compact grid is given a ‘park extension’, connecting it directly to the river. Both existing railroad and amended highway corridors are likewise adjoined by proposed extensions to existing parks. The final result is a surprisingly informal park system characterized by spatial continuity and ecological coherence.

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Taliesin collapsed, ‘an unfortunate tragedy that proved that Wright had been correct in his assessment of the vulnerability of steel truss bridges.’

It seems evident that the time he spent designing the bridge had prompted him to revisit the broader context in which it was situated, his ancestral Lloyd Jones Valley. Regarding this family history, the treatment Wright gives the existing Tower Hill State Park is worth noting. It is a site that had belonged to Wright's Uncle Jenkin Lloyd Jones, who had established a recreational and educational retreat there in 1899 involving outdoor recreation, visiting lecturers, a publishing house, and musical performance. The Tower Hill retreat grew to include over two-dozen cottages and a dining pavilion, as well as tennis courts and other structures. The nature of this retreat bore a distinct similarity to Patrick Geddes's Summer Meetings at Outlook Tower in Edinburgh, like the rural counterpart to that urban conference. Indeed they were contemporary events.<sup>363</sup> Among other noteworthy retreat participants was John Dewey, who had earlier befriended Wright's pedagogical aunts,<sup>364</sup> and they mentored Dewey in the years before and during his famous Laboratory School at the University of Chicago (1896-1904).<sup>365</sup>

As we noted in the preface, Wright's Welsh family had moved to this valley in 1864 amidst convergent influences at the end of the Civil War, and they arrived carrying the pedagogical tradition of Pestalozzi they'd picked up in Watertown, Wisconsin at the United States' first kindergarten, where they'd received instruction directly from Froebel's associate Margarethe Schurtz. Wright scholar Robert McCarter describes the historic context:

*For European immigrants, America offered the possibility of a new beginning, and this appealed particularly to the radical ministers and educators in the Lloyd Jones family, who brought with them a tradition of holding to their own thoughts and beliefs in the face of all opposition. Wright's grandparents, Richard and Mallie Lloyd Jones, emigrated to America in 1844 from Llandysul, Wales, bringing their seven children, Thomas, John, Margaret, Mary, Anna, Nanny and Jenkin. Nanny died during their subsequent travels in search of a homestead, and four more children, James, Enos, Nell and Jane (called Jennie), were born in America. In 1852 the close-knit family began purchasing what would eventually total 1,800 acres of land outside Spring Green, near Madison, along the Wisconsin River. In 1864, as the end of the Civil War approached, the Lloyd Joneses settled in what came to be known [locally] as 'The Valley of the God-Almighty Joneses', adopting as their family motto the phrase 'Truth against the world'.<sup>366</sup>*

[fig62\_lloyd-jones clan] The two Aunts Nell and Jane learned to teach under Schurtz associate Francis Parker,<sup>367</sup> and when they founded their Hillside Home School (1887-1914) they commissioned their nephew Frank to design the buildings, over time resulting in an expansive campus with a

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<sup>363</sup> Hamilton and Mollenhoff, *Frank Lloyd Wright's Monona Terrace*, 49.

<sup>364</sup> Frank Lloyd Wright, *An Autobiography*, 3rd ed. (New York: Pomegranate, 2005), 382.

<sup>365</sup> Laurel N. Tanner, "The Meaning of Curriculum in Dewey's Laboratory School (1896-1904)," *Journal of Curriculum Studies* 23, no. 2 (March 1, 1991): 103, <https://doi.org/10.1080/0022027910230201>.

<sup>366</sup> Robert McCarter, *Frank Lloyd Wright*, Critical Lives (London: Reaktion, 2006), 2.

<sup>367</sup> Wright, *An Autobiography*, 382.

remarkable intimacy between education, residence, and labor. Wright himself photographed the school and its activities and created a folio with 18 images that provide a portrait of the institution and the lives lived there. *[fig63\_hillside home school]* As with John Dewey's pedagogy some two decades later, this child-centered education was based on 'nature study', a theme beloved by Wright and by his sister, artist Maginel, who designed and published an annual Hillside Calendar whose cover consistently featured the theme.<sup>368</sup> *[fig64\_nature study\_calendar cover]* A portrait of Anna Wright, Frank's mother, with her two younger sisters Jane and Nell conveys something of their closeness and strength of character. *[fig65\_anna-jane-ellen]* Another photograph showing Aunt Nell on a balcony at the school with over a dozen of the teachers, many of whom are holding 'Hillside' pennants, suggests something of the intimacy enjoyed between the Lloyd Jones family and the broader Spring Green community. *[fig66\_hillside-teachers]*

The Hillside Home school closed in 1914, and the school buildings were given to Wright by his aunts on the condition that he would maintain their educational function. 1914 was to be a tragic year for Wright, however, with the murder of his family and the destruction of his home by fire. Nevertheless, under such inconceivably adverse circumstances - perhaps because of them - Wright volunteered to produce the design for the Inter-County Fair Association Women's Building. *[fig67\_women's-building]* There are actually no drawings for this work in the archives, but a newspaper photograph of Wright's design appeared in the Spring Green Home News on July 16, 1914.<sup>369</sup> The building as built differs substantially from the published representation –suggesting rather Wright's closer involvement in the design and construction process.

It is just this kind of community participation that makes Wright's Regional Highway and Park Systems project so compelling – it is part of a long-term commitment to his family and to his community. It may be that some members of this local Women's association were also teachers with his aunts, possibly even some of them are in that photograph taken on the balcony at Hillside. Taliesin is near enough to Spring Green that the smoke from his burning house was visible, as it was when the campus suffered significant fire damage in 1924 and again in 1952. The farming community is settled in the Wisconsin River's network of alluvial valleys, as shown in a 1920 aerial photograph of Taliesin in which Spring Green is just to the right of the framed view. *[fig68\_taliesin aerial]*

In 1920 the Viennese architect Rudolph Schindler was with Wright at Taliesin, and his drawing of the farm and fields – documenting the existing circumstances laying out that year's planting for crop rotation – is one of the first of many such drawings. The graphic originality of Schindler's label is memorable, playing with the conventions of music staff notation, but like all subsequent drawings of this type it is profusely annotated in Wright's own hand, showing Wright's close involvement in farming operations. *[fig69\_taliesin farm]* This drawing, though badly damaged and currently

<sup>368</sup> See for example: John Dewey and Evelyn Dewey, *Schools Of To-Morrow* (E. P. Dutton, 1915),

<sup>369</sup> Pfeiffer, *Frank Lloyd Wright Complete Works*, Vol. 3, 465.

undergoing restoration, effectively shows the combination of geometries at work on the site: on one hand, the axial grid of territorial planning, on the other, the alluvial topography and watercourses of the river through the hills. Here we have the first evidence of Wright's redesign of the highway intersection at top right, which was implemented in the 1930s, and the final evidence of the original meander belt of the stream Wright soon dammed – creating a 40 acre lake that provided hydroelectric power for the complex.

Very soon after founding the Taliesin Fellowship, Wright encouraged a number of the apprentices to jointly acquire farms that adjoined the Taliesin properties, and these were organized together as the Foundation Farm. An early drawing dated 1934 shows the first iteration of the territorial figure that appears in the 1947 park systems plan. *[fig70\_foundation-farm]* The 500 acre parcel Wright originally owned has been augmented by several of the first participating apprentices, yielding an overall figure in ink in which the first names of these participants are noted in the areas they contributed – which are delineated in pencil. The figure resembles two quadrants of a checkerboard that have sprouted in opposite directions, and is significantly more site-responsive than the much more diagrammatic Broadacre City plan created that same year.

In contrast to this clean drawing, clearly intended for presentation, two other 1934 drawings are again densely annotated in Wright's hand. *[fig71\_foundation-farm\_sketches]* In one Taliesin and the fields and orchards surrounding the house having been thoroughly erased and reworked several times, and in the other the stream's meander belt, streambed and flood zones are carefully delineated – it appears to be a kind of 'where-not-to-plant' drawing, used to derive the geometric form of the fields from this *via negativa* exercise. A third, earlier drawing from 1932 shares the format and layout established by Schindler's drawing of 1920 – and the alluvial *via negativa* figure of the field layouts. *[fig72\_1932\_taliesin-crop]* Noted in Wright's hand are corn, oats, barley, and hay; several smaller areas are dedicated to potatoes, squash and sweet corn, and interstitial areas indicate fencing for pasture land, separated into areas for sheep, and those with horses and cows together.

From the founding of the Fellowship in 1932 precipitated Wright's increased involvement in the Spring Green community in both social and design capacities. From 1933 on Saturdays the Fellowship opened the campus and hosted visitors to film 'and coffee by the fire' at Hillside Theater. From 1934 they began mounting exhibitions at Hillside Library that were open to the public, from 1935 began issuing regular reports in the local newspaper, the Spring Green Home News, and in 1938 these were made a regular weekly feature. Like the Women's club building whose design and construction he had supervised for the Iowa County Fair in 1914, Wright's work from this period reveals a series of civic-minded projects for the Jones Valley. These voluntary initiatives are interspersed with personal and official commissions in such a way as to demonstrate how changing circumstances prompted Wright to adopt a rather flexible, pragmatic attitude about these projects, while maintaining a long term civic vision for his ancestral valley.

In 1939 Wright designed a series of gates with geometric themes for Taliesin – one at each of the three points of access from the highway: a circular one for the north entry, square for the east, and triangular for the south. [fig73\_taliesin\_gates] These in fact were never built, but the designs are of interest for two reasons. First, they show that Wright was considering the factor of privacy while thinking of the public face of Taliesin toward the community at large – and second, he did not build them, so we are led to surmise that at some level he regarded the benefits of maintaining greater intimacy with his neighbors as more important than making a formal gesture of privacy. But again the seed of this idea takes root, and he went on to design other highway signage for the valley, as we will see.

In 1943 Wright's neighbors the Richardson's commissioned him to design a service station and restaurant on the property northeast of his and adjoining the riverfront. [fig74\_jones\_valley\_richardson\_station] The plan consists of two circular areas, the larger one is a restaurant at ground level, and the smaller one is an automobile showroom with full-length glass windows and doors. Connecting these two elements is a curved stone retaining wall up against the steep hillside. On the upper level is the residence, a rectangular wing extending back into and along the hill, where a door at the end of the corridor provides access onto the hill. The primary material is native limestone, quarried from Wright's own property nearby and laid up in the articulated manner of Taliesin, just across the road. Like Taliesin the upper level walls and parapet are cement stucco whose color is derived from the river sand from which it is made.<sup>370</sup> The Richardson's did not build the project, in the end, preferring to sell the property to Wright and move their business into Spring Green – and the project was revised in 1953 and built in 1957 as the Riverview Terrace, a restaurant to be owned and managed by the Taliesin Fellowship. As reported in the Spring Green Home News, Wright intended that the restaurant provide 'a wayside for tourists with a balcony over the river'.<sup>371</sup> The restaurant is still in active operation, and the building was given an addition by Taliesin Architects in the 1970s to accommodate the additional functions of bookstore, tour center, and building conservation administration.

The published perspective view of Wright's 1947 *butterfly bridge* design bears a striking similarity to the view one now has from the Riverview Terrace's 'balcony over the river' of the standard Wisconsin Highway Department that exists there now, so it is not surprising that it is commonly assumed that Wright's bridge design was intended to be built there. As we've noted, the previously unpublished 'Regional Highways and Park Systems' drawings demonstrate otherwise. [fig75\_jones\_valley\_park\_system] Among the differences worth noting in the two versions of the plan, the latter of which was described above, 'Wild Life Preserve' is here labeled somewhat more aristocratically 'Proposed Game Preserve,' the area of 'Lowland Forest' in the bend of the river is labeled 'Village

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<sup>370</sup> Pfeiffer, 49.

<sup>371</sup> "Wright to Erect Terrace Restaurant and Balcony Wayside at Old Bridge Site," *Weekly Home News*, August 13, 1953.

Park', and an additional road labeled 'Scenic Drive for Private Cars' is added to this area, connecting it directly to Spring Green to the north. This scheme was next explicitly augmented in 1953 with a project for pedestrian and horseback mobility Wright called 'Taliesin Viaduct' when he described the project to the apprentices: *[fig76\_taliesin-viaduct]*

*...crossing over State Highway 23...allow[ing] pedestrians and horseback riders to pass from one side of the Taliesin property to the hills and fields on the other side. At the right side, overlooking the river, [is] a 'milk bar' with the entrance at ground level. Above there is a roof terrace accessible from the viaduct.*<sup>372</sup>

Wright again revisited highway signage in 1956 in advocacy for his initiative to designate the highway adjoining the Taliesin property as 'Taliesin Parkway', a title befitting Olmsted's legacy having coined the term in the context of articulating his ideal of park systems. *[fig77\_jones-valley\_taliesin-parkway]* In the 1950s Wright and his apprentices had acquired additional land along U.S. Highway 14, several miles away from Taliesin itself, and this sign was to be placed there at the terminus of the road that leads to Taliesin. The limestone and copper sign reads 'Taliesin Parkway' in illuminated letters, and incorporates a planting box, indirect lighting, and an arrow helpfully indicating the way to Taliesin.<sup>373</sup>

On June 8, 1957 Frank Lloyd Wright turned 90, and the list of civic projects he designs for his Spring Green community in the last two years of his life would provide a recognizable program for any civic designer: a school, a post office, a medical clinic, community center and a public garden. Just southwest of Jones Valley is Wyoming Valley, where a piece of land adjoining the highway had been donated by a neighbor, in consultation with Wright and the Iowa County district school board, for the purpose of building a new elementary school. Wright designed the project, arranged for the donation of the materials, and the building was built by the Taliesin Fellowship in cooperation with local contractors. *[fig78\_jones-valley\_wyoming-school]* The perspective drawing shows a building of native limestone, like Taliesin down the road, but as was often the case local contingencies prompted a change and on the working drawings the material was changed to standard concrete block.<sup>374</sup>

It is worth noting that the design is derived from his 'Kindersymphonies' projects of 1926 for the Oak Park Playground Associations, which were themselves derived from his 1912 design for the Avery Coonley Playhouse, built in Olmsted and Vaux's community of Riverside, Illinois: photos of Wright's school for this early pedagogical client in Jensen's garden – and within Olmsted's community setting – were later used as illustrations by John Dewey himself as exemplary educational settings of the 'nature study' ideal.<sup>375</sup>

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<sup>372</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 5:346.

<sup>373</sup> Pfeiffer, *Frank Lloyd Wright Complete Works*, Vol. 3, 474.

<sup>374</sup> Pfeiffer, 480.

<sup>375</sup> John Dewey and Evelyn Dewey, *Schools Of To-Morrow*.

1957 was also the Centennial anniversary of Spring Green, and when the village of staged a grand event in the summer of 1957, Wright played an active role in the celebration. The booklet published on the occasion opens with an homage to the architect, and enters into a thorough summary of the history of the Lloyd Jones family and their valley. Again Wright designed a highway sign, this time for this city – the original drawing for this sign has been lost, but the sign has been rebuilt several times since then according to the simple design: a slab of stone with ‘Spring Green’ in illuminated letters rises above a low triangular planting box, made of stacked limestone and holding flowers and shrubs.<sup>376</sup> Wright’s design of the same year for the Spring Green Post Office is a modest rectangular volume with an extension adjoining the public lobby at one corner providing an entrance to the side lobby, where individual post boxes are held. *[fig79\_spring-green\_post-office]* A low planting box closely matching the one at the ‘Spring Green’ highway sign is at the corner of the entrance, with a wide terrace where the two sidewalks meet at the corner of the block.<sup>377</sup>

Wright designed the Spring Green Clinic in 1958 on another corner lot in downtown Spring Green. *[fig80\_spring-green-clinic]* Designed to serve as both a medical and dental clinic, the rectangular plan has much in common with the post office of the year before – both projects are pragmatically conceived of as ‘instruments for civic service’.<sup>378</sup> Wright’s last design for the center of Spring Green is more significantly more nuanced – and more symbolic. The main design move of the Spring Green Community Center is a large planted earth berm, wrapping around the enclosed part of the semi-circular plan, with entrances piercing the berm in two locations. *[fig81\_spring-green\_community-center]* Restrooms are placed on either side of these entrances, and an outer ring of spaces provides areas for crafts and hobbies, meeting rooms, a public lounge, and snack bar. From a trellised promenade open to the sky, four entrances yield to an auditorium – referred to by Wright as ‘the forum’ - with seating for 1,000. A cantilevered roof over this stage acts as a shell to project the sound, and doors open onto an outdoor amphitheater with semi-circular seating rising from another earth berm.<sup>379</sup>

The final design Wright made for his community was Unity Temple, a mortuary temple he described as ‘a public garden’ to be built adjacent to the Lloyd Jones family’s Unity Chapel, designed by Silsbee – contributing to the drawings for which chapel had provided Wright’s first architectural experience at 16 years old. *[fig82\_jones-valley\_unity-temple]* The archives show that Wright’s design went through many revisions in proportion and articulation, while the general concept remained consistent: a square temple with an outer row of massive rectangular limestone piers and an inner row of narrow square limestone piers. In the final design the floor is labeled ‘black marble,’ and the pattern

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<sup>376</sup> Pfeiffer, *Frank Lloyd Wright Complete Works*, Vol. 3, 517.

<sup>377</sup> Pfeiffer, 470.

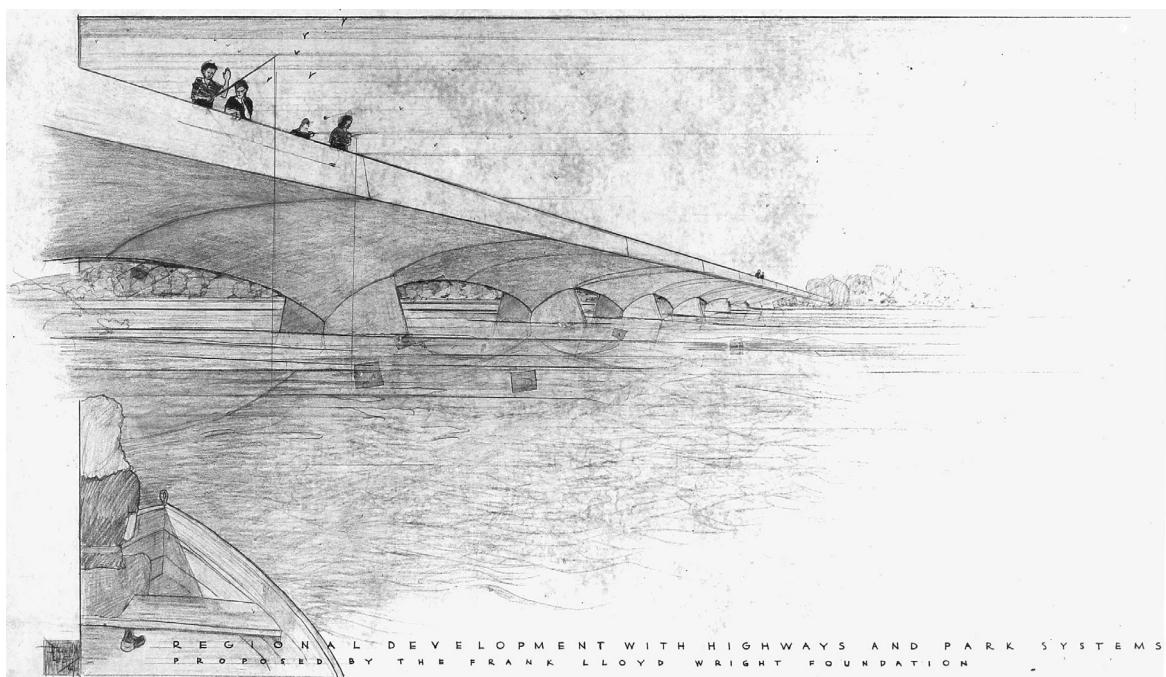
<sup>378</sup> Pfeiffer, 544.

<sup>379</sup> Pfeiffer, 543.

of the black marble floor is repeated in the skylight above, a detail directly reminiscent of the skylights in his 1906 design for Unity Temple in Chicago's Oak Park. Adjacent to the temple is a paved walk along a row of sarcophagi and a reflecting pool, about which Wright's pre-eminent archivist and former apprentice, Bruce Brooks Pfeiffer, writes:

*These were to be the burial plots for life members of the Taliesin Fellowship. Another paved walk leads to the nearby family chapel. Some sketches have a tall limestone cenotaph with a slender bronze lantern rising out of it. Wright indicates that it is to be placed on a 'center line of Grandfather Obelisk,' a reference to the grave of Richard Lloyd Jones, Wright's grandfather.<sup>380</sup>*

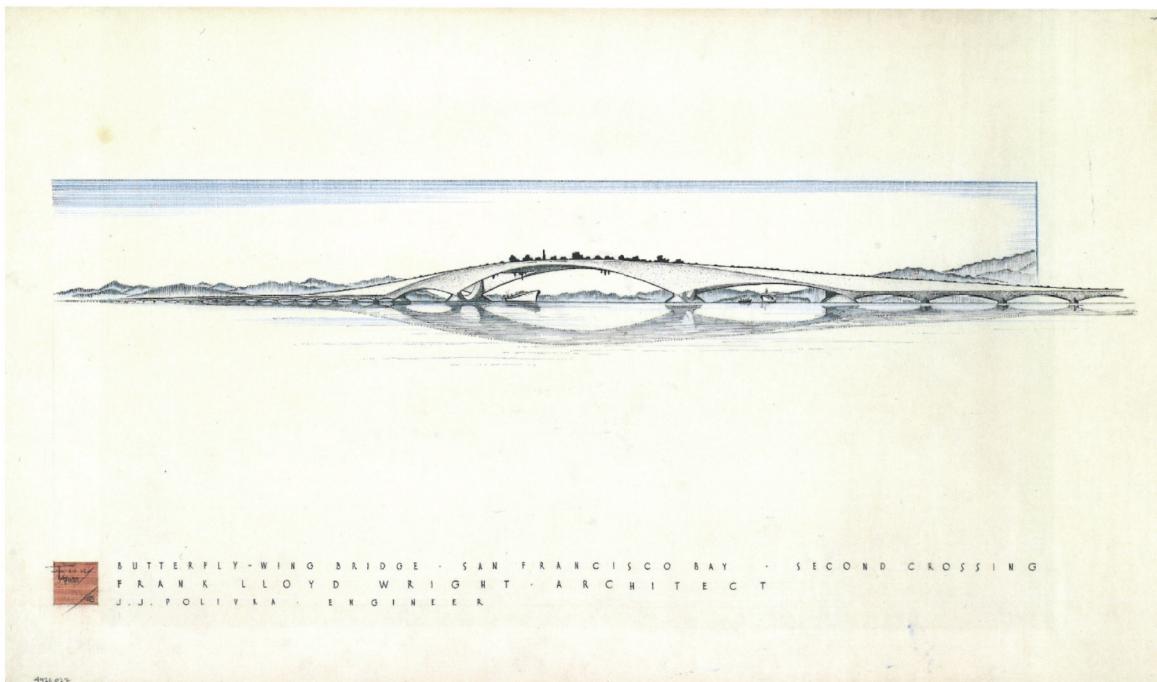
So it is that at the end of this inventory of civic-minded community designs, we arrive at this memorial – it is in every way a place of memory. Wright had fulfilled his promise to his aunts to continue their pedagogical ambition for their beloved valley. At the time of his death, Bruce Pfeiffer says there were five projects on the boards: one was a design for a modest prefabricated house – the other four were educational buildings for the campus at the University of Arizona.



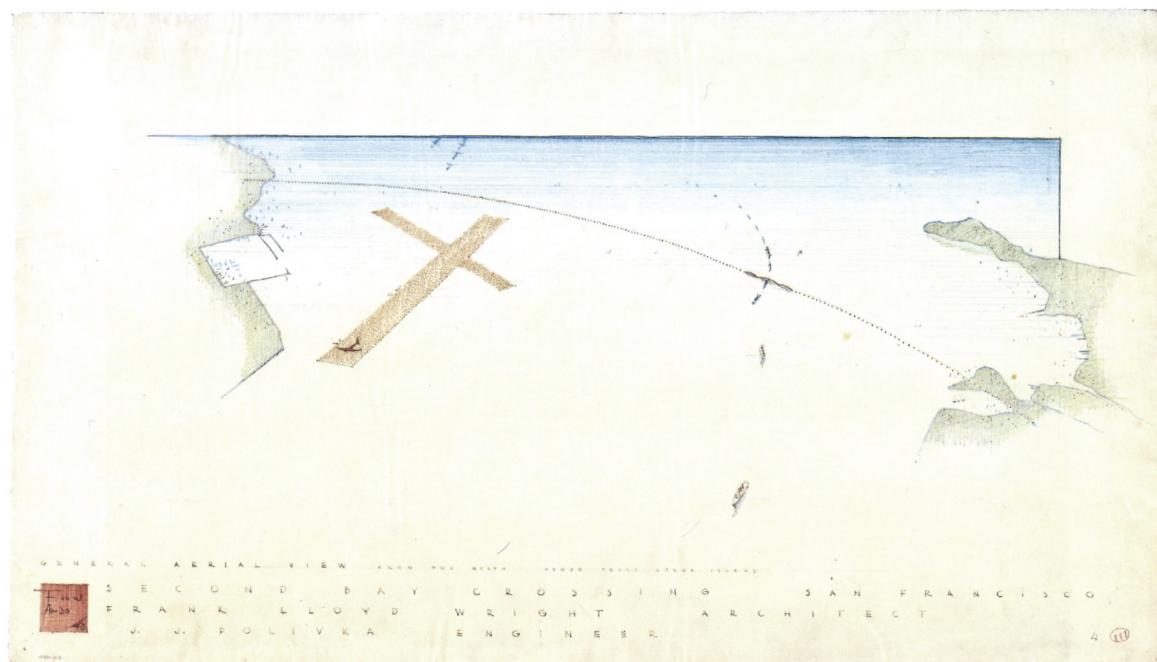
[fig58\_Wright\_Regional Development with Highways and Park Systems, view (1942)] FLLW 4723.001

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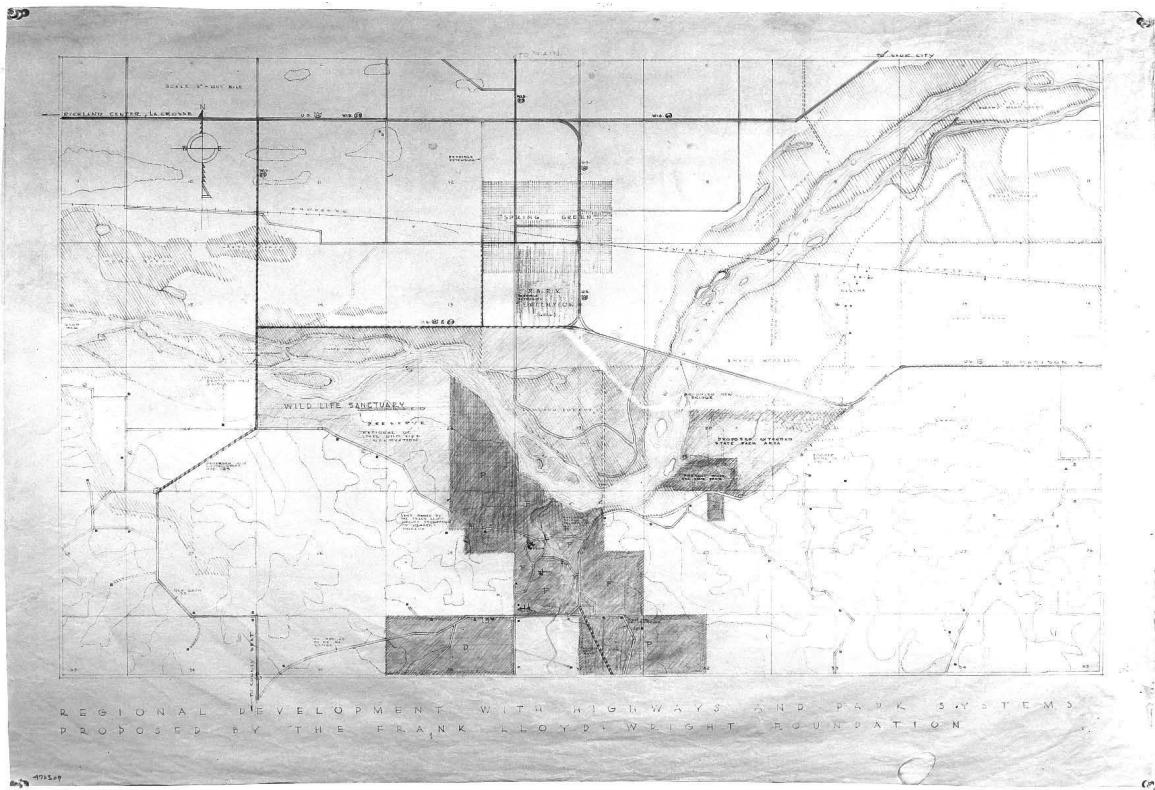
<sup>380</sup> Pfeiffer, 550.



[fig59\_Wright\_Butterfly Wing Bridge, San Francisco Bay, view (1949-53)] FLLW 4921.022



[fig60\_Wright\_Butterfly Wing Bridge, San Francisco Bay, overview (1949-53)] FLLW 4921.003



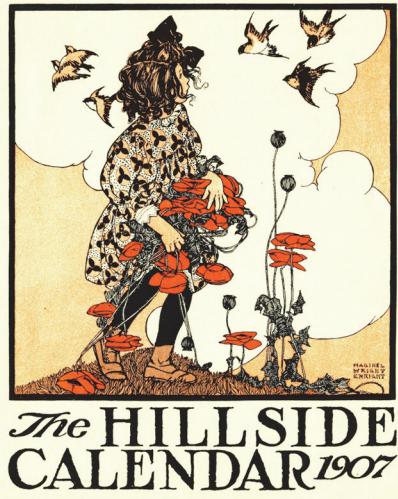
[fig61\_Wright\_Regional Development with Highways and Park Systems, view] FLLW 4723.007



[fig62\_Lloyd-Jones Clan, Large family portrait of the Lloyd Jones family (1883)]  
In Madison, Wisconsin. Frank Lloyd Wright, age 16, sits to the right of the empty chair. WSHS



[fig63\_Hillside Campus (1900)] Photo taken by FLLW and included in Hillside Folio. WSHS pb-6675-3



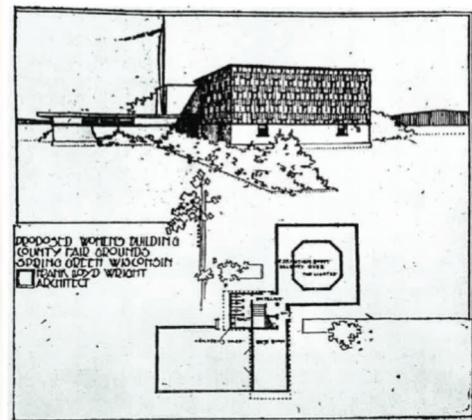
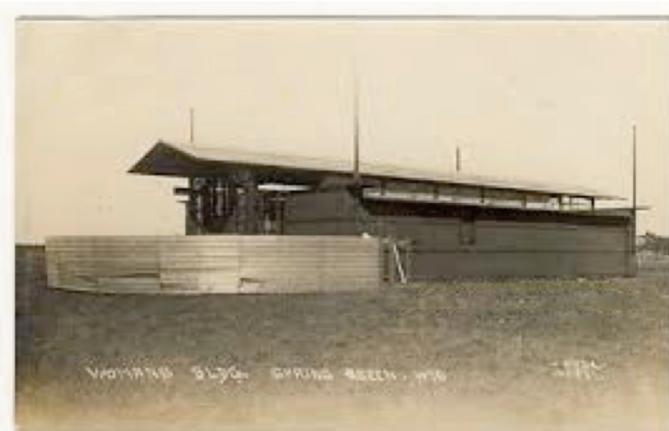
[fig64\_Hillside student (1907)] (right) Calendar cover by Wright's sister Maginel. WSHS



[fig65\_The Lloyd Jones Sisters: Anna, Jane, Ellen (1908)] WSHS



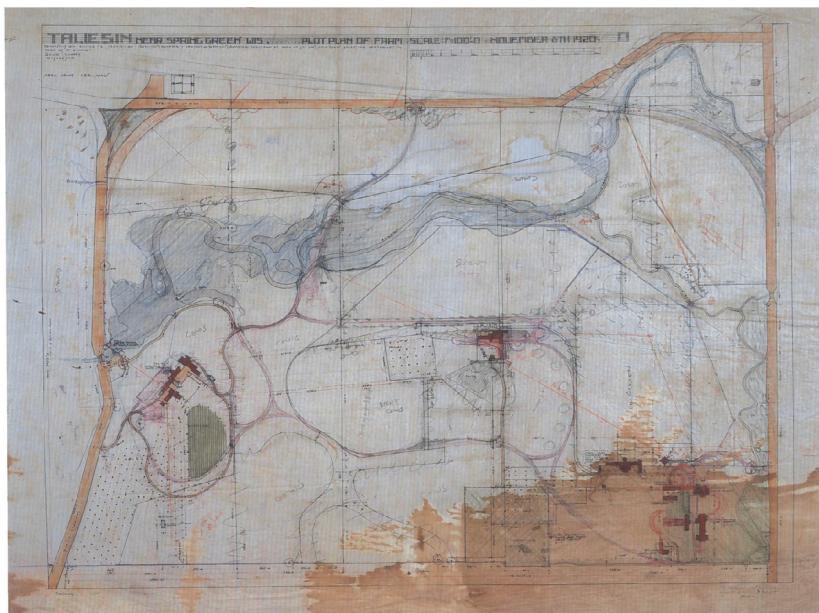
[fig66\_Hillside teachers, with Aunts Jane and Ellen (1908)] WSHS



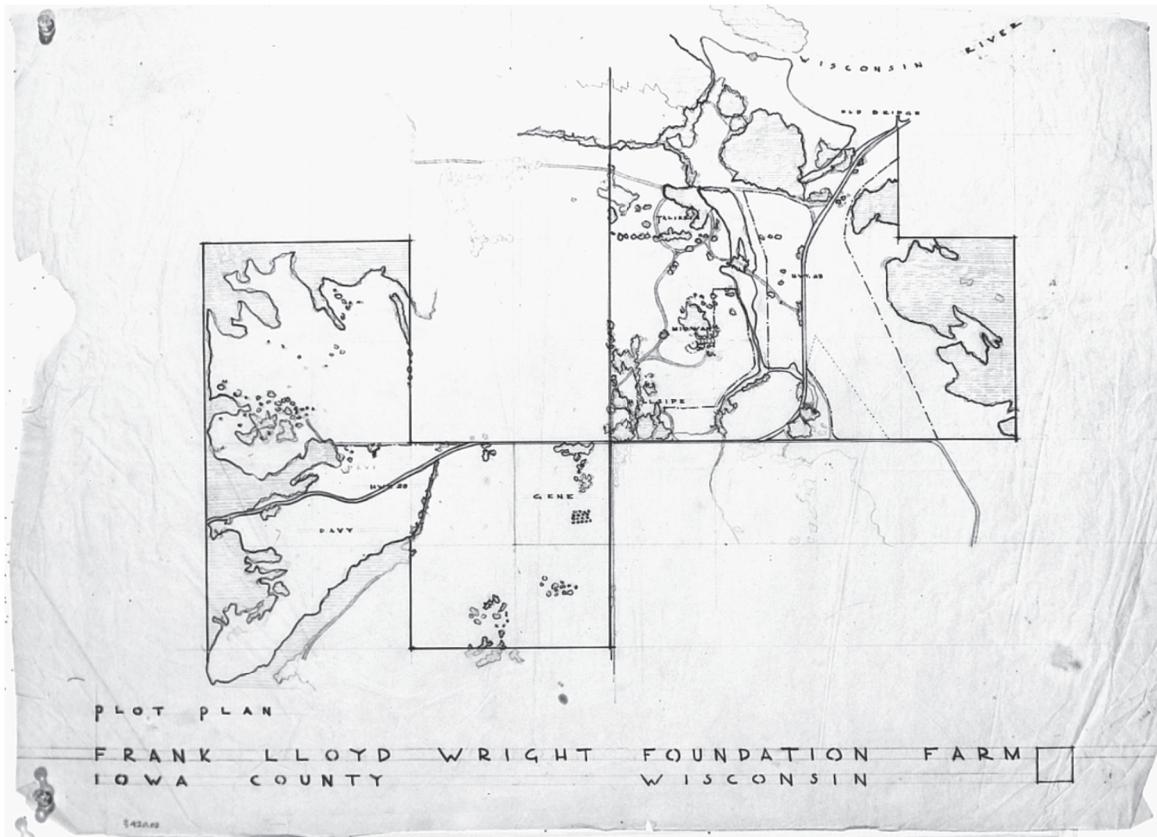
[fig67\_Wright, *Inter-County Fair Association Women's Building*, Spring Green (1914)]  
Built in 1914, demolished 1924. WSHS



[fig68\_Taliesin, aerial photo (1920)] WSHS, John Howe Collection



[fig69\_Taliesin, near Spring Green, Wisconsin – Plot Plan of Farm (1920)] FLLW 3420.005



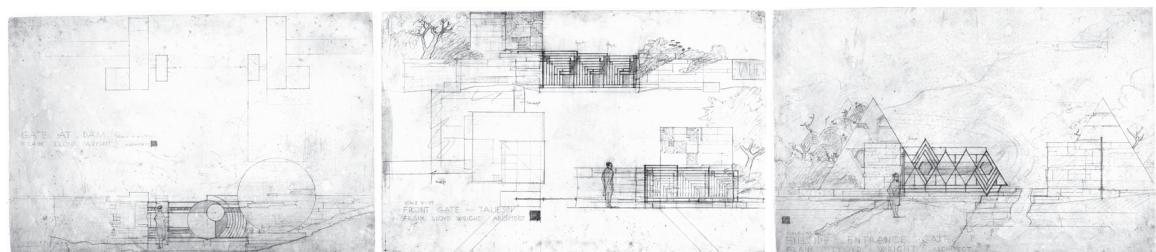
[fig70\_Frank Lloyd Wright Foundation Farm, Iowa County, Wisconsin (1934)] FLLW 3420.002



[fig71\_Taliesin Farms: Taliesin, Aldebaran, Mausfallen, Red Oak (1934)] FLLW 3420.003/6

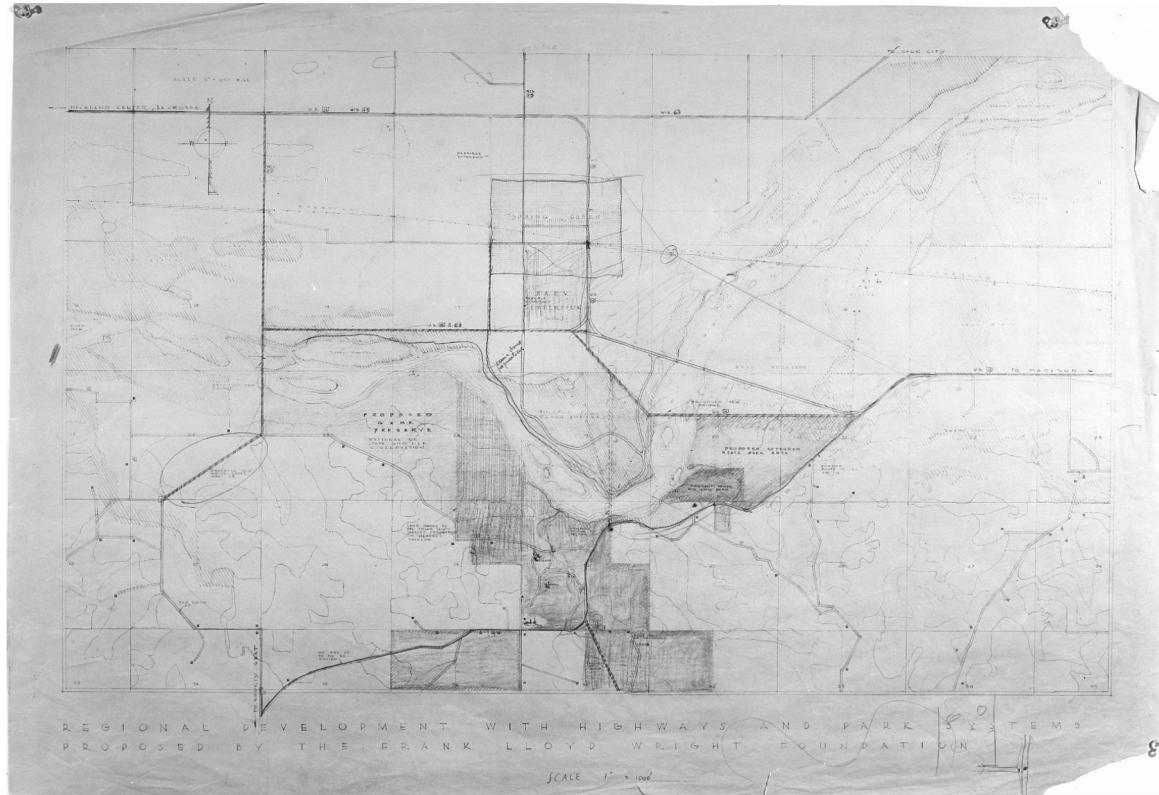


[fig72\_Taliesin farm, crop diagram (1932)] FLLW 3420.009

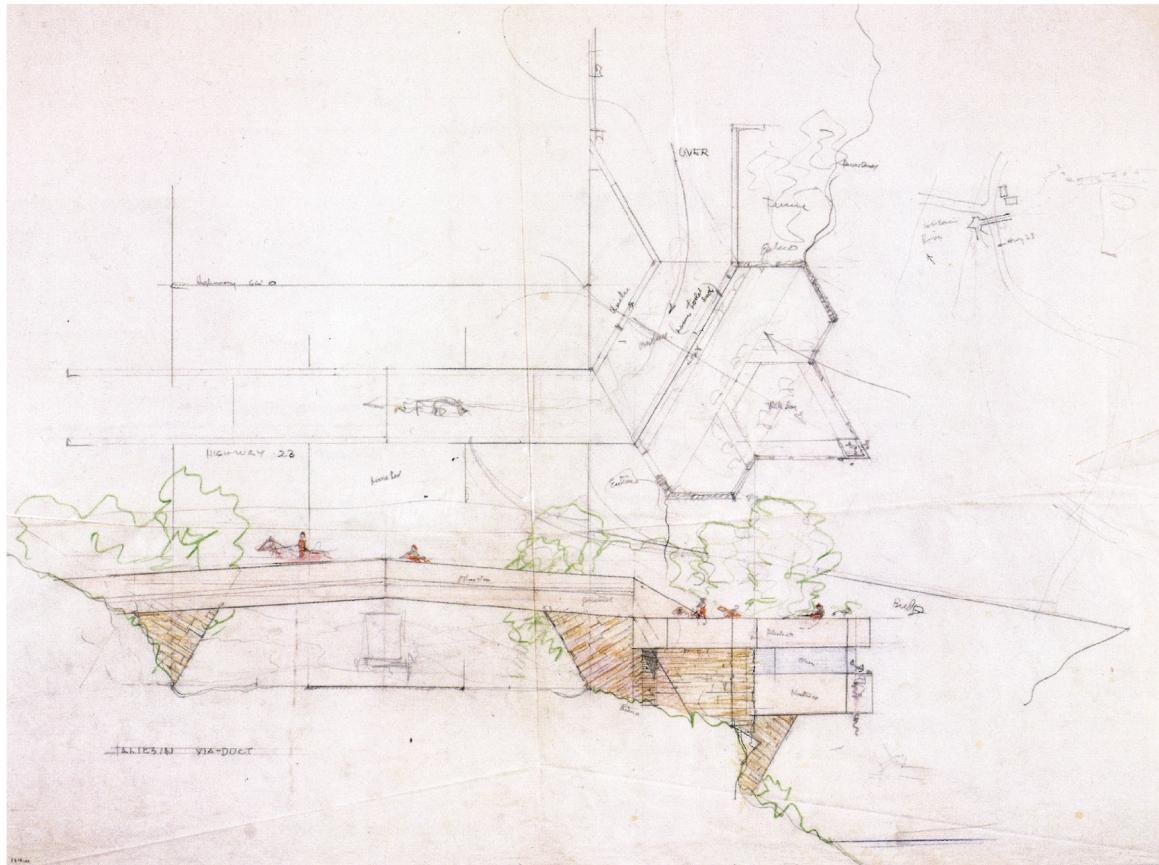


[fig73\_Taliesin, three gates (1939)] FLLW 3921.001-3

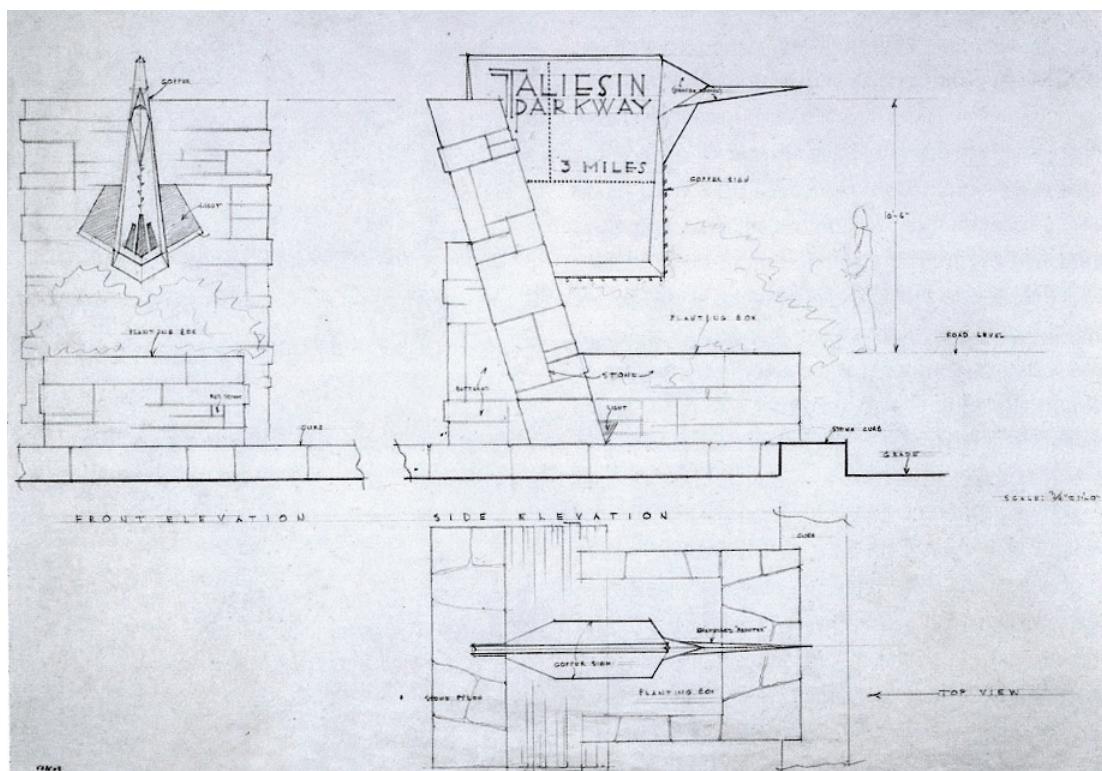
[fig74\_Garage and Restaurant for Glenn and Ruth Richardson\_1943] FLLW 4306.003



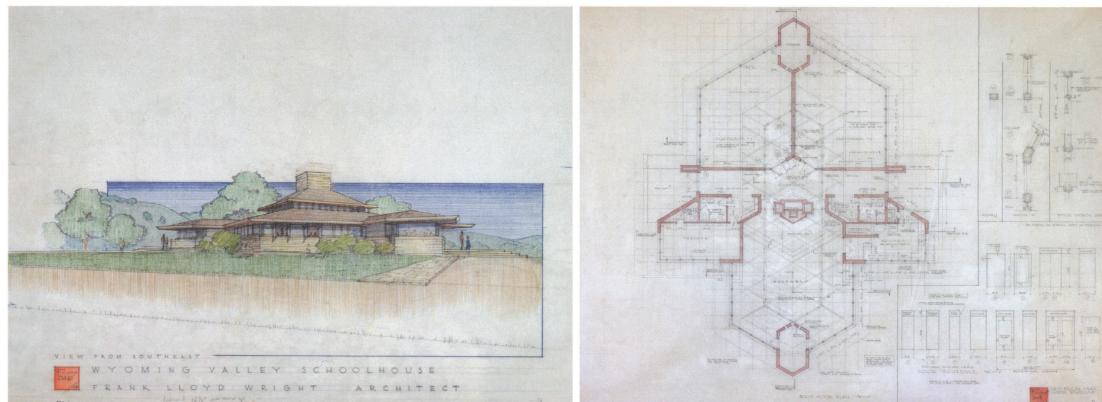
[fig75\_Regional Development with Highways and Park Systems, plan process (1947)] FLLW 4723.006



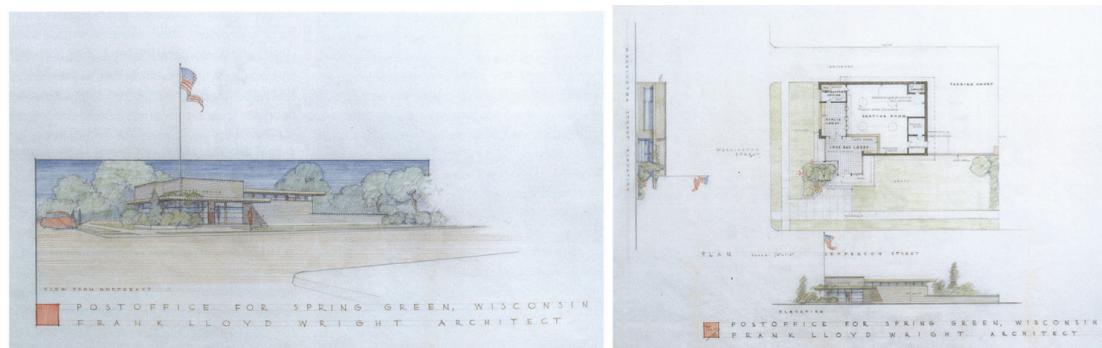
[fig76\_Taliesin Viaduct (1923)] FLLW 5316.001



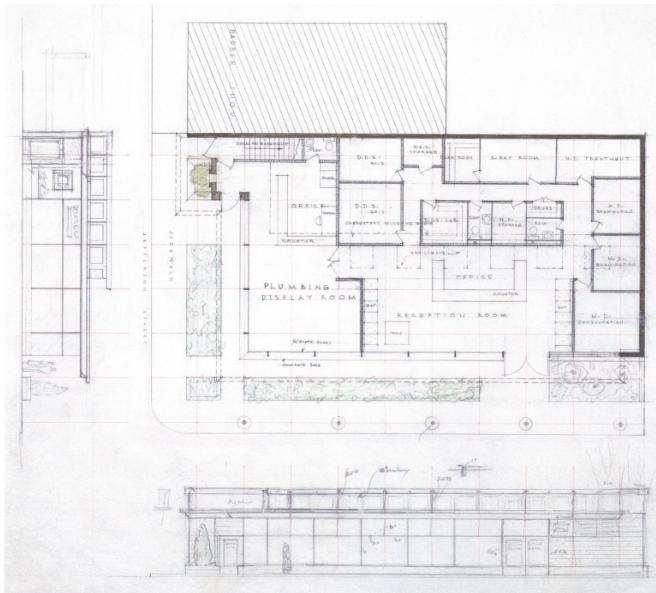
[fig77\_Taliesin Parkway, sign (1956)] FLLW 5610.001



[fig78\_Wyoming Valley Schoolhouse, view (1957)] FLLW 5741.003/12



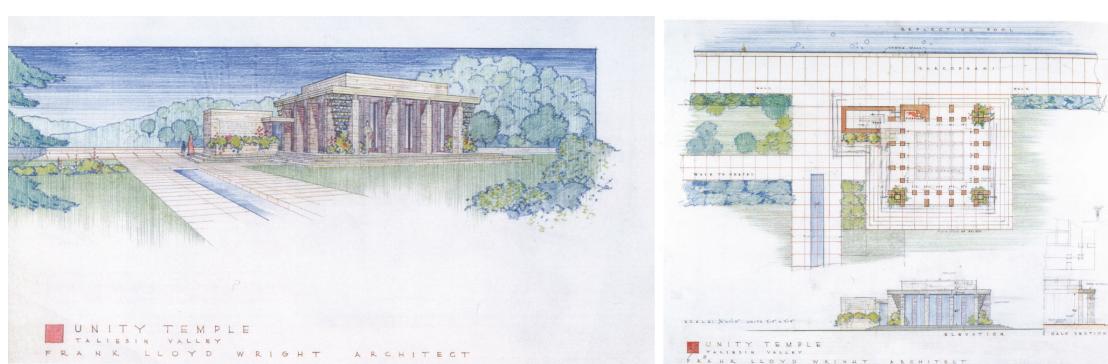
[fig79\_Post Office for Spring Green, Wisconsin (1957)] FLLW 5738.005/7



[fig80\_Spring Green Medical and Dental Clinic (1958)] FLLW 5808.001



[fig81\_Spring Green Community Center (1958)] FLLW 5815.003/8/12



[fig82\_Unity Temple, Taliesin Valley (1958)] FLLW 5811.009/10

## 2.3 Civic Design

*Charting the consistent displacement of civic design programs by urban design programs, concluding the chronological survey, and introducing late innovations that prompt a new look at civic design.*

This chapter charts the consistent displacement of *civic design* programs by *urban design* programs, showing how while the ecological side of the *park systems* theme was taken up at the regional scale by ecologists championing ‘greenways’ and ‘ecological corridors’, the civic aspects of *park systems* have languished in design disciplines. The recent resurgence of multifaceted public space design - led by designers who identify as ‘landscape urbanists’ practicing ‘landscape infrastructure’ - illustrates the timeliness of this re-evaluation of the interdisciplinary paradigm of *civic design*, which I argue is an important precedent from which to learn in both the rehabilitation of existing park systems and in the creation of such contemporary efforts as are now being made in cities like Addis Ababa and Medellin. *Park systems*, an interdisciplinary specialty of *civic design*, are perhaps uniquely well-suited to give form to the current international initiative to establish ‘The Charter of Elements’ – ensuring the well-being of all by extending the rights of personhood to water, soil, and air.

### *i. Introduction*

Focusing on the unpublished archival materials of the less well-known design projects and academic initiatives I've found in the course of my research, this chapter aims to establish the increasing relevance and utility of *park systems* today with a critical re-evaluation of *civic design*, the parent discipline of that practice. Although there are literally hundreds of *park systems* projects around the world, as we have seen – dating from the 1800s to the present, and culminating with a fully-fledged international *park system* movement in the years from 1900-1950 – their very ubiquity makes them largely invisible to designers, and they are still generally not known by architects and landscape architects. But they ought to be, as they are currently being reinvented from the bottom up by communities – for example in Addis Ababa, Ethiopia and Medellin, Columbia, where they are providing the same social and ecological civic services as historic park systems – only now these civic services are explicitly provided to those most in need.

I believe these *park systems* demonstrate an important, yet largely forgotten, legacy of *civic design* – a discipline that was the immediate precursor to *urban design*. *Park systems* were built for the civic life in the existing cities of their own time, enabling ecological coherence, active mobility and civic exchange - and in several vividly illustrative instances these *park systems* have also effectively anticipated the contemporary needs of those cities, as well. In the last chapter we learned, for example, that Havana's farmers currently grow over 99% of their vegetables in the city itself, within the park system designed by Parisian civic designer Jean-Claude Forestier in 1929. Civic designers had learned to explicitly address the structure of regional *ecology*, *ecology*, and *ecumenism* in their design – and while

architects were largely preoccupied with prefabrication and architecture as a factory-based product, civic designers were working with interdisciplinary teams within a paradigm of context-responsive, locally-sourced, site-specific modes of production.

Based on the findings presented here, among other preliminary outcomes I suggest that the role of *civic designers* in the design process was central to the coordination of administrative bodies and community organizations. *Park systems* were planned and built by *civic designers* in Africa, Asia, Australia, South and North America, and Europe, and their historic presence on each continent underlines the value of their further research. As the recent destruction of the *Macedonian National Archives* by arsonists demonstrates, the presence of the evidence needed for such research cannot be taken for granted. Unlike famed figures like Frederick Law Olmsted and Frank Lloyd Wright, who also designed and built *park systems*, most of these civic designers did not leave central personal archives - and these incredible drawings, paintings and prints are now primarily to be found dispersed among the regional and municipal archives of the places where they worked. It was in municipal archives that I found the information for many of the projects we've considered: places like Birmingham, St. Louis, Nashville, Detroit, Chicago, Cincinnati, and Minneapolis, as well as smaller cities like Circleville, Ohio – where John Nolen's *park system* defers to prehistoric mound complexes of the ancient inhabitants of the Mississippi River Valley – and Menomonie, Wisconsin – where Olmsted's trusted associate Warren Manning drew the plans for an educational community in an ecological setting, initiated and supported by Welsh Unitarians, New England Transcendentalists and Irish Quakers.

Although little known, the material one finds in these municipal archives is often of exceptional quality and consistency, and the historic utility of these materials was truly instrumental. In the majority of cases I've found these *civic designer's park systems* were quickly accepted and effectively championed by their communities. The *park systems* themselves are generally both practical and poetic, usefully revealing an 'image of the city' that is based on regional ecologies and provides a mental map for regional inhabitants. By stabilizing one's orientation within the city's anatomy – as established on the basis of the site's underlying ecological armature – the park provides systematic access to municipal, educational and recreational activities, and to 'soft' and 'active' mobility options. These diverse civic elements cohere together within the *park system* armature as *civic design*.

We've also considered several well-documented examples of these park systems being obstructed and even indefinitely blocked by vested financial, corporate, and industrial interests – broadly speaking first railroad and coal, and then automobile and petroleum industries. We will now consider how the same interests used their influence to displace the civic design discipline altogether, and to finance the creation of the commercially friendly discipline of urban design.

## *ii. The Legacy of Civic Design*

One of the unexpected outcomes of this research was the recognition that the discipline of civic design was the direct predecessor of urban design, and one of the primary objectives of this research is to prompt a rediscovery of the discipline of *civic design* itself. Historically *civic design* was a rigorously interdisciplinary practice - notably involving sociology, visual and performance arts, pedagogy, recreation, architecture and landscape design. We have seen that the 'world's first comprehensive survey' was initiated in London in 1894 by Charles Robert Ashbee – later a close associate of both Jane Addams and Frank Lloyd Wright – whose initial idea of a 'building survey' was complemented by Patrick Geddes's contribution of a 'social survey', and the 'world's first planning school' was established under the moniker of Civic Design by associates of Patrick Geddes in Liverpool in 1909.

We have taken note of the relevance of this location because Liverpool, even more than London, was a city of the early industrial revolution – and even more to the point it is the same city where Olmsted had first arrived from abroad to find Birkenhead Park, which had so decisively influenced his designs for North America's urban parks. We have also noted that soon thereafter *civic design* programs emphasizing *park systems* were established at the most advanced schools on both sides of the Atlantic - likewise, North American park systems were popularized in Europe by such noteworthy advocates as Jean Claude Forestier, whose book *Grandes villes et systèmes de parcs* (1908) effectively adapted what he called 'the North American model' to European cities and their colonial capitals.

*Civic design* thrived academically and professionally on both sides of the Atlantic from about 1900 until about 1950. Just as was the case with the discipline of landscape architecture, *civic design* was a fledgling discipline notably pioneered by Frederick Law Olmsted, whose studio included horticulturists, sculptors and architects, as well as social and material scientists. Olmsted had first called himself 'architect', and then 'landscape architect' after Loudon (referring to Meason, as we have noted – although other Europeans had also used equivalent terms in French and in German). Olmsted used the term *civic* frequently, but it was only taken up as a disciplinary title by the next generation of apprentices in his design studio.

It was not Olmsted himself but his son Frederick Law Olmsted, Jr. (1870-1957) who eventually co-founded both *landscape architecture* (1900) and *civic design* (1910) programs at Harvard. The fact that Harvard exercises academic influence, and that these programs anticipated and likely encouraged the creation of similar programs at other institutions – including the University of Pennsylvania and the Massachusetts Institute of Technology – will take on poignant relevance in another fifty years, as we will see. Olmsted, Jr. was raised in his father's home and studio in Brookline, Massachusetts, west of Boston. The elder Frederick Law Olmsted had moved to Brookline in 1883, after creating its axial parkway, Beacon Street, and – as we have seen with both Patrick Geddes's

*Outlook Tower* and Frank Lloyd Wright's *Taliesin* – some of the most important work of his design studio was done within the community there.

When Olmsted arrived with his family in 1882, Brookline was an extremely civic-minded city. By 1880 the city had created its own local streetcar line, a school system, a fire department, a full time police force, a water works, and a sewer system. Historian Keith Morgan describes a visit Olmsted made to the city to meet with park officials early in 1881, when due to a heavy snowfall Olmsted spent the night at a hotel. Olmsted was impressed when he woke to find that the streets already cleared by city services, and was said to have commented, “This obviously *is* a civilized community. I hope I will be able to live here one day myself.”<sup>381</sup> Since 1868 Olmsted had been actively involved in creating a new civic vision of nature and culture with his *park system*, and he had befriended several of the city’s distinguished artistic residents. Among those with whom he became particularly close, in friendship and collaboration, was the brilliant and eccentric architect Henry Hobson Richardson (1838-1886). Richardson is famous as the designer of Trinity Church in Boston, who together with Frank Lloyd Wright and his mentor Louis Sullivan is regarded as ‘the trinity of American architecture’.<sup>382</sup>

In the case of Brookline, Olmsted and Richardson were joined in their work by the eminent horticulturalist Charles Sprague Sergeant (1841-1927), who was the director of the Arnold Arboretum (1872-1927) and also lived in Brookline. His contribution to the *park system* there is evident in its flowing seasonal displays and in its flowing combination of lawns, woodlands, meadows and gardens, horticultural features that still draw visitors from around the world. When Olmsted finally moved to Brookline these men became neighbors and formed a kind of triumvirate the most influential Americans in the fields of horticulture, architecture and landscape architecture, and their collective practice can be effectively characterized *civic design*.

### *iii. Founding the Discipline*

Olmsted's design home and studio at 99 Warren Street in Brookline was also the home of the incipient practice of landscape architecture, and was the training ground for its earliest practitioners. Olmsted named the home and studio Fairstead. Historian Keith Morgan asserts that ‘training in landscape architecture in the United States begins at 99 Warren Street’.<sup>383</sup> In addition to training the next generation of landscape architects, the people who went on to found the discipline of *civic design* were immersed in the project-based learning of studio culture characteristic of Olmsted's studio. Among those nurtured in the studio that we've already considered are Charles Eliot, Warren Manning, and John Nolen – among many others of interest are Henry Codman and Arthur Schurcluffe. Olmsted's

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<sup>381</sup> *Community By Design: The Olmsted Firm and the Development of Brookline, Massachusetts* (Boston: Library of American Landscape History, 2015), n. 1:56-2:08, <https://www.youtube.com/watch?v=H8rI-OQzK3c>.

<sup>382</sup> James F. O’Gorman, *Three American Architects: Richardson, Sullivan, and Wright, 1865-1915* (University of Chicago Press, 1992), xv.

<sup>383</sup> *Community By Design*, n. 11:50.

stepson John Charles had been an apprentice since 1875 and became a partner when the firm relocated to Brookline. Frederick Law Olmsted, Jr. apprenticed in the studio throughout his teens and became a partner soon after having completed his studies at Harvard in 1894.

While developing the large park projects for Boston, Olmsted's neighbors in Brookline continued to engage him to design their estates, providing his studio with a steady source of revenue. Brookline was in fact known to be among the wealthiest communities in the nation, and was home to the nation's first country club as well as to some of its finest schools. It is not a coincidence, for example, that John F. Kennedy was born in Brookline – and the ethos he imbibed there certainly informed his willingness to champion environmental causes during his presidency later. Between the civic-minded projects large and small, Olmsted was prompted to work out the process of how a landscape architect deals with a client, with city administration and with other professional disciplines. The work of Olmsted and his associates in Brookline was generally very low-key, emphasizing landscape conservation rather than park creation – Brookline itself was never given a park by Olmsted, who felt that it was unnecessary to have a designated park in such a well-administered 'park-like' community. Among other early innovations developed through practical experience here were negotiated boundaries with shared gardens and the continuous treatment of landscapes whose features are owned by several property owners, and by private and public interests.<sup>384</sup>

#### *iv. Civic Design and Monumentality*

The two readily identifiable emphases of the *civic design* discipline as taken up by Olmsted's protégés (ca. 1900-1940) were *park systems* and *monumentality*. It must be said that the *civic designers* that came out of Olmsted's studio generally inclined towards more formalist tendencies than their mentor, and the attitude of some of their international colleagues was notably top down and even occasionally authoritarian. Berliner Werner Hegemann, who we met in the last section, opens his book *Civic Art* (1922) with a figure labeled 'CHAOS' – but the image itself shows a city block that would be normal in Greenwich Village, and even exemplary of desirable variety Jane Jacobs would later eulogize there. [fig1\_chaos] Even so, Hegemann's influential book, written with his colleague civic designer Elbert Peets and bearing the rather monumental title, *American Vitruvius: An Architects' Handbook of Civic Art*, underplayed park systems while emphasizing monuments. As opposed to Jacobs's Geddes-like ideal of 'elicited variety', the idea that an imposed and formal order is necessary and desirable is an old dream – one common to autocracy, aristocracy, and other class-based powers – and the penchant of *civic designers* to rely on their role in delivering monumentality was to prove an Achilles's heel for the discipline.

Nevertheless, the inclination is understandable, and our historic review demonstrates that Hausmann's legacy pairing park systems and boulevards with monumental civic architecture had

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<sup>384</sup> *Community By Design*, n. 10:41-56.

indeed been effective. It is true that in Paris the façades of newly monumental housing projects acted as a screen to hide poorer neighborhoods, but it is also true that the rent collected from these expensive apartments also financed the water features, sculptures and other civic elements within the park systems. Likewise, Hausmann's monumental axes through the city are acknowledged to have been designed to accommodate the mobility of the military throughout Paris, but it is also true that the columns of trees lining these grand boulevards provided beneficial urban microclimate and habitat for urban animals.

A hundred years later American cities were receiving a record number of civic monuments, and we have noted that over 700 Civil War monuments with sculptures dedicated to confederate heroes were built between the 1865 and 2015. These were uniformly installed in civic places – parks, schools, and courthouses.<sup>385</sup> But there were two periods that saw significant spikes in frequency. The first period was from 1900-1920, reaching its apex in 1909-10 – at the very moment *civic design* programs were also proliferating. However the political meaning of these monuments was clear: around 1900 Southern states began enacting Jim Crow laws to disenfranchise African Americans and to re-segregate society following several decades of half-hearted integration during the Reconstruction.

The Ku Klux Klan was formed in 1866, following the end of the Civil War in 1865, and by 1915 it had taken on new momentum and became known as ‘the invisible empire.’ Then, as now, these white supremacists formally honor controversial figures with monuments and informally take actions fomenting civic unrest. Following the ‘Red Summer’ race riots of 1919, the Tulsa race riots of 1921, and the Detroit race riots of 1943, the seeds of the Civil Rights movement (1954-68) began to bloom. It was during this period that Confederate monuments saw another spike in the frequency of their implementation – peaking in 1963 with Alabama Governor George Wallace’s infamous ‘stand in the schoolhouse door’, in which he defied Federal law and physically stood with his militia at the door of the University of Alabama to prevent black students from entering the school, and tapering off again only with the assassination of Martin Luther King in 1968. *[fig2\_wallace-king]*

Civic designers and architects were part of the polemic discourse on monumentality throughout this period, but they increasingly tended to stand for opposite positions – with architects and their powerful patrons on one side, and civic designers and their interdisciplinary colleagues on the other. At a 1948 London symposium entitled “In Search of a New Monumentality” (in which Henry-Russell Hitchcock, Sigfried Giedion, Walter Gropius and others participated) the Swedish art historian and exhibition designer Gregor Paulsson declared monumentality itself to be inconsistent with democracy, and suggested that intimacy should take its place, instead.<sup>386</sup> Paulsson encouraged making a transition

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<sup>385</sup> Southern Poverty Law Center, “Whose Heritage?”

<sup>386</sup> “Symposium: In Search of a New Monumentality,” *Architectural Review*, September 1948.

whereby ‘monuments’ and ‘monumentality’ would be humanely reconsidered for the modern, post-war world as ‘things that remind’ and as ‘intimacy.’<sup>387</sup>

This distinction is consistent with Frank Lloyd Wright’s response several years earlier to Philip Johnson’s request that he accept a commission from the Museum of Modern Art to conceive of a ‘war monument’ addressing ‘the immediate problem of designing symbols for war remembrance,’ writing, “We need your help in imagining what could be a proper symbol.” Wright’s response was discerning, if characteristically polemic:

*October 3, 1945*

*Dear Phil:*

*I do not believe in monuments.*

*Memorials are better if they are useful to those who live in the memories they memorialize. So [a] memorial for what? Where? When?*

*Symbols are out.*

*Let's face the modern reality – true romanticism.*

*Sincerely, (signed)*<sup>388</sup>

This distinction between ‘monuments’ and ‘memorials’ was further highlighted the following decade in the ensuing disciplinary debate between Lewis Mumford and Sigfried Giedion<sup>389</sup> about monumentality as related to Mumford<sup>390</sup> and Jacob’s debate about street life<sup>391</sup>. The timeliness of this discerning debate, and the relevance of *civic design* to it, was confirmed by the ‘I Have a Dream’ speech given by Martin Luther King Jr. on August 28, 1963 – at the base of the Lincoln Memorial, sited at the riverfront terminus of Frederick Law Olmsted Jr.’s monumental park system axis connecting the Potomac River and the National Capitol. A more suitable forum for King’s speech is difficult to imagine – accommodating masses of people, the water feature reflecting both light and sound, it is ‘the trope’ in monumental form: but composed of landscape elements, the only architectural features being

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<sup>387</sup> “Symposium: In Search of a New Monumentality,” 121.

<sup>388</sup> Bruce Brooks Pfeiffer, ed., *Frank Lloyd Wright: Letters to Architects*, Second Printing (Fresno: California State University Press, 1984), 105.

<sup>389</sup> Joan Ockman and Edward Eigen, *Architecture Culture, 1943-1968: A Documentary Anthology* (Columbia University Graduate School of Architecture, Planning, and Preservation, 1993).

<sup>390</sup> Lewis Mumford, “THE SKY LINE ‘Mother Jacobs Home Remedies,’” *The New Yorker*, Dec 1, 1962.

<sup>391</sup> Richard P. Sennett, *Making Dwelling* ((unpublished), 2016).

the termini at each end – the obelisk of the Washington Monument at the east, and the Greek Temple of the Lincoln Memorial at the west.

Given Olmsted Sr.'s early and explicit assertion that building parks would facilitate the end of slavery in the United States, I believe this culmination of the civil rights movement confirmed, if there was still any doubt, that streets, parks, and monuments are fundamentally within the scope of *civic design*. Yet at the very moment the *civic design* discipline was given such profound validation, it was being systematically dismantled. My research has revealed rather disturbing evidence that Standard Oil, in the guise of the Rockefeller Foundation, undertook to influence academics at several key institutions to abandon use of the phrase 'civic design', to close programs bearing the name, and to replace these with 'urban design' programs. The first of these was Siegfried Gideon at MIT, the second was Jose Luis Sert at Harvard, the third was Jane Jacobs at Columbia University, and the fourth was Kevin Lynch.

In effect, the civic design discipline was decisively displaced in April 1956, when incoming Harvard dean Jose Luis Sert began the *urban design* program at Harvard by ending the *civic design* program – stating in his opening talk at the first Urban Design Conference at Harvard that in organizing the conference,

*...the sponsors avoided the term 'Civic Design' as having, in the minds of many, too specialized or too grandiose a connotation...We cannot screen slums with marble fronts and colonnades, nor establish balance and harmony in a community [by] developing monumental civic centers, ignoring the living conditions of people in neighborhoods around those centers.<sup>392</sup>*

Here Sert is clearly criticizing the monumental pretensions of certain civic designers, using the well-known criticisms made of Hausmann's grandiose monumentality – which, fair enough, had been designed for the dictatorial Napoleon.

Despite Sert's valid critique of civic designer's acknowledged tendency to harbor certain 'beaux-arts' pretensions – the basis for years of subsequent polemicism regarding 'monumentality' – in eschewing an explicitly civic emphasis, commercial interests came to dominate urban design. Urban design is itself a discipline that architects adopted specifically in order to wrest power away from those then responsible for urban projects, people whose disciplines architects still tend to dismiss as 'technocratic' planner-scientists and 'greenfinger' ecological-gardeners. Thus, urban design was itself soon dominated by architects - having shed much of its interdisciplinary character it bore little resemblance to their predecessor's multivalent *civic design*.

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<sup>392</sup> "Urban Design: Condensed Report of an Invitation Conference...at the Graduate School of Design, Harvard University," *Progressive Architecture*, August 1956.

#### v. Urban Design vs. Civic Design

The term urban design was almost unknown before 1950, and the first indication of the popularization of its use – by the metric of its appearance in English language books – follows Sert's 1956 conference.

*[fig3\_bigram\_civic-urban]* Sigfried Gideon had been funded by the Rockefeller foundation in 1953, and that very year he ceased lecturing on Civic Design as he had done for years, and began to lecture on the theme of 'urban design.' We know Sert's rationale for adopting his sponsor's preferred terminology, but Gideon's thinking on the subject requires further research. What did *civic design* and *urban design* mean to Gideon – what were their similarities and differences in his mind? Considering the distinctions between such terms as civic design, urban design, and city planning, architectural historian Neil Levine insightfully reveals something of the disciplinary prerogatives of architects:

*The American term 'city planning,' referring to 'the drawing up of an organized arrangement (as of streets, parks, and business and residential areas) of a city,' according to Merriam-Webster's, first came into use in 1900. As the practice devolved in the later 1920s and 1930s into a statistics driven, economics-based analytical tool geared toward policy decisions, the more inclusive concept of urbanism as a spatial-formal response to the 'physical needs of city dwellers,' as well as their spiritual and cultural ones, came into use not only as a modern substitute for the discredited City Beautiful idea of 'civic design,' but also as a delimitation of the concept of urbanism to mean 'that part of city planning which deals with the physical form of the city' at any scale. Although most city planners and/or urban designers, from Daniel Burnham and Raymond Unwin to Wright, Le Corbusier, and Nolen, looked to certain precedents for their work in earlier periods, it is quite clear they thought they were engaged in something new and modern.<sup>393</sup>*

Levine expands on this observation with an endnote referring to the statement made by Sert, and the report published in the conference proceedings that followed later, writing:

*In the introduction to this report, it was stated that 'the sponsors have avoided the term Civic Design as having, in the minds of many, too specialized or too grandiose a connotation' and instead have used the new term 'Urban Design.' 'Grandiose' was obviously a code word for the City Beautiful.*

Indeed, in his remarks following directly on this introduction, Sert described the 'city beautiful' approach as 'outdated' and 'superficial' in having 'ignored the roots of the [urban] problems and attempted only window-dressing effects.'<sup>394</sup>

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<sup>393</sup> Levine, *The Urbanism of Frank Lloyd Wright*, xvii.

<sup>394</sup> Levine, 390n7.

In light of what we know of its history, let us once more carefully consider to what degree this blanket criticism of the civic design discipline holds true. We know that the first program in Civic Design was instituted by Charles Herbert Reilly at the Liverpool School of Architecture in 1909, and that he did so after visiting the United States to study the work of McKim, Mead & White, Daniel Burnham, and other examples of projects that involved both *park systems* and the kind of monumentality associated with American Beaux-Arts classicism. Liverpool University has reason to be proud of having established this ‘first-of-its-kind Department of Civic Design, with Charles H. Reilly and Patrick Abercrombie’<sup>395</sup> – along with the first university departments in oceanography, architecture, and biochemistry.<sup>396</sup>

Curiously, however, even that school dropped their use of the term ‘civic design’ as a departmental designation in 2009, having used the term for 100 years.<sup>397</sup> At the time the Department of Civic Design was established it was as part of the School of Architecture, itself founded in 1894 as the first institution in the UK to offer a university architecture course.<sup>398</sup> The term is currently still used as the title of a joint postgraduate Masters and Doctoral program in the Department of Geography and Planning.<sup>399</sup> But why was the ‘civic design’ designation dropped? The program was clearly both enduring and innovative, and the Department of Civic Design even won the Royal Town Planning Institute (RTPI) Planning Award, the Institute’s highest honor, in 2009 – the very year the designation was dropped. According to Sue Kidd, senior lecturer in this department and head of the current Civic Design program, ‘civic design’ is likely to resurface as a departmental masthead. In discussion she recently confided,

*The term has gone for now in our external facing presentation but is still alive and well in staff hearts here, and may well resurface at some point in the future.*<sup>400</sup>

As to the question of Sert’s association of ‘civic design’ with such an array of connotations – being both ‘too superficial’ and ‘too specialized,’ as well as ‘too grandiose’ – she acknowledges that the term Civic Design was dropped in 2009 ‘out of an interest in interdisciplinarity,’ stating,

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<sup>395</sup> Levine, 341.

<sup>396</sup> “University of Liverpool,” *Wikipedia, the Free Encyclopedia*, January 5, 2016, [https://en.wikipedia.org/w/index.php?title=University\\_of\\_Liverpool&oldid=698346966](https://en.wikipedia.org/w/index.php?title=University_of_Liverpool&oldid=698346966).

<sup>397</sup> “Master of Civic Design,” *Wikipedia, the Free Encyclopedia*, May 2, 2015, [https://en.wikipedia.org/w/index.php?title=Master\\_of\\_Civic\\_Design&oldid=660474750](https://en.wikipedia.org/w/index.php?title=Master_of_Civic_Design&oldid=660474750).

<sup>398</sup> “History - Architecture - University of Liverpool,” accessed January 18, 2016, <https://www.liverpool.ac.uk/architecture/about-us/history/>.

<sup>399</sup> “Civic Design MPhil/PhD - Geography and Planning - University of Liverpool,” accessed January 18, 2016, <https://www.liverpool.ac.uk/geography-and-planning/research/postgraduate-research/civic-design/civic-design/about-us/>.

<sup>400</sup> Sue Kidd, “Personal Correspondence,” October 8, 2015.

*...the title Civic Design was acknowledged to have become somewhat problematic in the 1970's when the more planning systems approach gained ascendancy...One thing you are picking up on is an ongoing debate regarding terminology: civic design, town and country planning, regional design.<sup>401</sup>*

Certainly it is noteworthy that the journal established by the Department of Civic Design in 1910 did not include the words ‘civic design’ in the title – opting instead for the appellation ‘The Town Planning Review’. At this early date the phrase ‘urban design’ had not yet been coined, so ‘town planning’ indicated a distinction with ‘city planning’. Perhaps ‘rural design’ is its nearest contemporary equivalent. But this distinction, while increasingly relevant given the accelerating urbanization of our own era, still misses the clarity of purpose that a clear emphasis on civic design might bring – providing a common social armature for both rural and urban design. “The term civic design is fit for purpose to address the public interest,” states Kidd.

Even so, throughout the history of the Town Planning Journal, from its first volume published in April, 1910, until the present day, the term ‘civic design’ has only featured in the title of contributions to the journal a mere 10 times.<sup>402</sup> Even so, the first of these titles was indeed in the very first issue of the journal, in an essay aptly named, ‘An Introduction to the Study of Civic Design’,<sup>403</sup> while the second appears in the following issue in a book review, titled ‘Civic Design at the Royal Academy.’<sup>404</sup> It would be another six years until the term appeared again, in the compelling 1916 essay ‘The Relation of Exposition Planning to Civic Design’.<sup>405</sup> Five years later the need for greater disciplinary outreach and interpretive effort had become clear, and in 1921 the essay ‘How To Popularize Civic Design’<sup>406</sup> was published. This seems not to have been taken up, as it was another 28 years until the next article featured the term, 1949s ‘Civic Design: An Inquiry into the Scope and Nature of Town Planning’.<sup>407</sup> Again, it was 4 years until the term appeared in the journal, with ‘Scale in Civic Design’<sup>408</sup> in 1953. Another 13 years later the term appeared, but merely as identifying the Department of Civic Design as the book reviewers in 1966 of a survey published that year.<sup>409</sup> The last significant journal entry on the subject appeared in almost 20 years later, in 1985, with the essay

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<sup>401</sup> Kidd.

<sup>402</sup> “The Town Planning Review on JSTOR,” accessed January 28, 2016, <http://www.jstor.org/journal/townplanrev>.

<sup>403</sup> Adshead, “An Introduction to Civic Design.”

<sup>404</sup> A., “Civic Design at the Royal Academy.”

<sup>405</sup> Budden, “The Relation of Exposition Planning to Civic Design.”

<sup>406</sup> Edwards, “How to Popularise Civic Design.”

<sup>407</sup> Holford, “Civic Design: An Inquiry into the Scope and Nature of Town Planning.”

<sup>408</sup> Blumenfeld, “Scale in Civic Design.”

<sup>409</sup> Kathleen Pickett, “Department of Civic Design, University of Liverpool, ‘Willaston Village Survey’ and ‘Greasby’ (Book Review),” *Town Planning Review* 37, no. 3 (October 1, 1966): 228, <https://doi.org/10.3828/tpr.37.3.k026153u433r553u>.

‘Architecture, Town Planning, and Civic Design’<sup>410</sup> – the other two final entries being a review of one of the essays published long before, in 1949, appearing in 1986,<sup>411</sup> and the second being an obituary for the author of the final 1985 essay, who died in 1997 – which obituary appeared for some reason in 15 years later in 2012.<sup>412</sup> A review of these references for clues to identify why it is that the term ‘civic design’ was in fact never popularized is needed in order to further inform the viability of such popularization now.

Among recent scholarship on the subject, two English language books have appeared in the last seven decades. The most recent is *British Provincial Civic Design and the Building of Late-Victorian and Edwardian Cities, 1880-1914*, authored by Ian Morley, Assistant Professor of Urban Studies at the Chinese University-Hong Kong. Prior to that was a biography of William Holford (1907-75), one of the instructors at the Liverpool Department of Civic Design, written by Gordon Cherry and Leith Penny and titled *Holford: A Study in Architecture, Planning and Civic Design*.<sup>413</sup> Both these books are relevant to the subject, but the latter is clearly of central interest in this research. The book was published in 1986 and reissued in 2005. Promptly following its initial imprint the book was duly reviewed in the Town Planning Journal by none other than a representative from the Canberra College of Advanced Education, one Roger Johnson, who concludes his review of the book with a note of appreciation – and a note of omission:

*We can have nothing but gratitude for the authors for giving us this excellent biography. If there is a complaint it is for the decision to omit his overseas consultancies, especially as this must be the definitive biography. One more chapter would have covered his Australian and African work. In many respects his role in establishing the National Capital Development Commission casts as much credit on him as anything else.*<sup>414</sup>

In fact I have not included Canberra, the Australian ‘new capitol city’ collaboratively designed by a team led by Frank Lloyd Wright’s former studio leaders Marion Mahony and Walter Burley Griffin. [fig4\_canberra-plan] The project has a remarkable backstory that has been well-researched elsewhere, although the nature of Marion Mahony’s contribution is currently being thoroughly revisited by a new

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<sup>410</sup> Gordon Stephenson, “Architecture, Town Planning and Civic Design,” *The Town Planning Review* 56, no. 2 (1985): 135–73.

<sup>411</sup> Roger Johnson, review of *Review of Holford: A Study in Architecture, Planning and Civic Design*, by Gordon E. Cherry and Leith Penny, *The Town Planning Review* 57, no. 3 (1986): 331–32.

<sup>412</sup> Jenny Gregory and David Gordon, “Introduction Gordon Stephenson, Planner and Civic Designer,” *Town Planning Review* 83, no. 3 (January 1, 2012): 269–78, <https://doi.org/10.3828/tpr.2012.15>.

<sup>413</sup> Iain Gordon Cherry and Leith Penny, *Holford: A Study in Architecture, Planning and Civic Design* (London: Routledge, 2005); Johnson, “Review of Holford.”

<sup>414</sup> Johnson, “Review of Holford,” 332.

generation of scholars.<sup>415</sup> Formally the Canberra scheme is a fascinating hybrid between the *garden city*, *civic design*, and the kind of formal, symmetrical morphologies explored fifty years later by Victor Gruen and the Japanese *metabolists*. While these are unquestionably beautiful drawings, as city designs – not to mention *civic designs* – their common flaw, one shared with Gloeden’s work and others of its ilk, is that they propose a *closed form* predicated on the assumed need for an *optimum* density and *maximum* tolerances. We will return to this line of critique in the closing chapter.

Gruen’s projects of this type date from his own planning treatise of 1964, *The Heart of Our Cities*, in which his use of the term civic is profuse and varied: in addition to regular references to ‘civic centers,’ Gruen writes of *civic spirit*, *civic virtues*, *civic administration*, *civic improvement*, etc. [fig5\_gruen] he duly cites Ebenezer Howard, Le Corbusier, Lewis Mumford, and Frank Lloyd Wright – of whose Broadacre City he writes that it is ‘Frank Lloyd Wright’s Utopia, which takes the form of a spread-out pattern of living that only by the greatest stretch of the imagination can be called a city.’<sup>416</sup> Gruen’s critical appreciation of these persons appear in the books appendices in a section titled ‘Some Books of Special Interest,’ where Gruen also cites an early Regional Planning Association Bulletin critical of ‘urban sprawl’ and advocating Wrightian ‘broadness’ titled ‘Spread City.’ He cites Jane Jacobs’s *Death and Life of Great American Cities*, qualifying his admiration for the ‘great validity’ of her observations by wrongly, and rather condescendingly, stating that ‘they are, of course, less, if at all, valid for newer cities, for urbanization in metropolitan areas or for the planning of new communities.’<sup>417</sup>

Finally it is important that Gruen also cites Jacqueline Tyrwhitt – as editor of *The Heart of the City: Towards the Humanization of Urban Life*, the official publication of the 8<sup>th</sup> CIAM Conference of the same name, held in 1951. There is much to be said of Tyrwhitt, whose own legacy is only now being subjected to scholarship – as the her archivists assured me when they told me I was the first visitor there to look at her material in over a year. For now it is enough to point out that she was a close associate of Patrick Geddes, and the person to whom Geddes bequeathed his most orderly selection of papers at the end of his life, which I have cited elsewhere in the dissertation. These papers now constitute a large part of the Jacqueline Tyrwhitt Collection at Strathclyde Library at the University of Glasgow, where, conveniently, Geddes’s own archive is also maintained.

Despite this sustained critical discourse, it seems that in the end it was Sert’s criticism of *civic design* being ‘burdened’ with ‘connotations of superficiality’ that is itself suffering from superficiality. As urban historian Jon Peterson writes in *The Birth of City Planning in the United States, 1840–1917* (2003):

<sup>415</sup> See for example: Marion Mahony Griffin, Walter Burley Griffin, and Anne Watson, *Beyond Architecture: Marion Mahony and Walter Burley Griffin: America, Australia, India* (Sydney: Museum of Applied Arts and Sciences, 1998); David Van Zanten, *Marion Mahony Reconsidered* (University of Chicago Press, 2011), n. I refer here to current research undertaken by colleagues on Mahony’s role in both Wright’s studio and in her work with her husband, Griffin.

<sup>416</sup> Victor Gruen, *The Heart of Our Cities; the Urban Crisis: Diagnosis and Cure* (London : Thames & Hudson, 1964), 351.

<sup>417</sup> Gruen, 350.

*In fact, the renunciation of the City Beautiful never expressed true repudiation. A review of thirty-five plans, more or less comprehensive in nature, produced in 1910- 1917 for cities of 25,000 or more [summarized by Peterson in the table in Chapter 14: Opportunistic Interventionism] reveals that most planners still recommended park systems and civic centers-ideas at the heart of the City Beautiful plan making - although they shifted their emphasis to traffic and transportation.<sup>418</sup>*

We can trace the ‘shift in emphasis to traffic and transportation’ noted by Peterson in the work of the colleagues of Olmsted, Geddes and Wright – and to one rather surprising colleague in particular, as we will see.

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<sup>418</sup> Peterson, *The Birth of City Planning in the United States, 1840–1917*, 265.

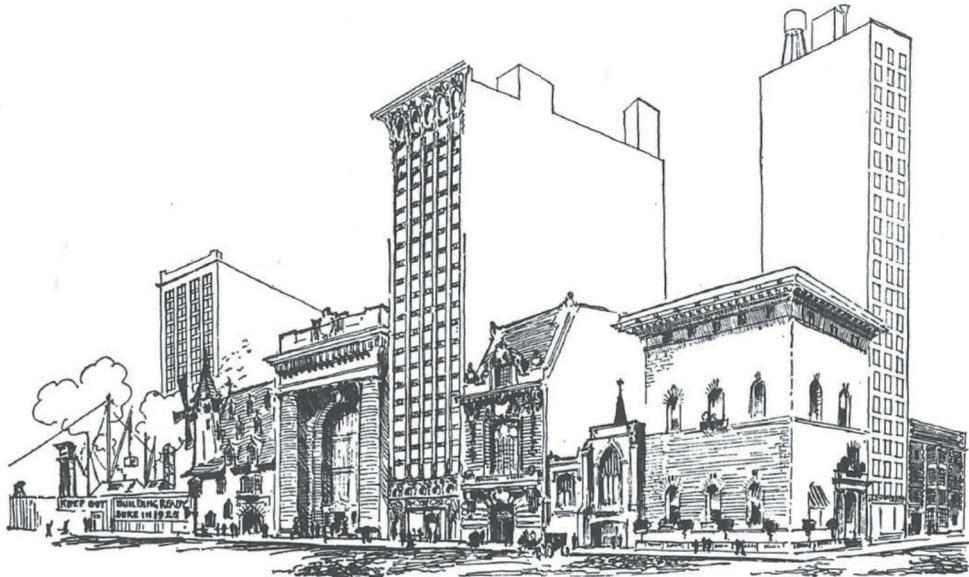


FIG. 2—CHAOS.

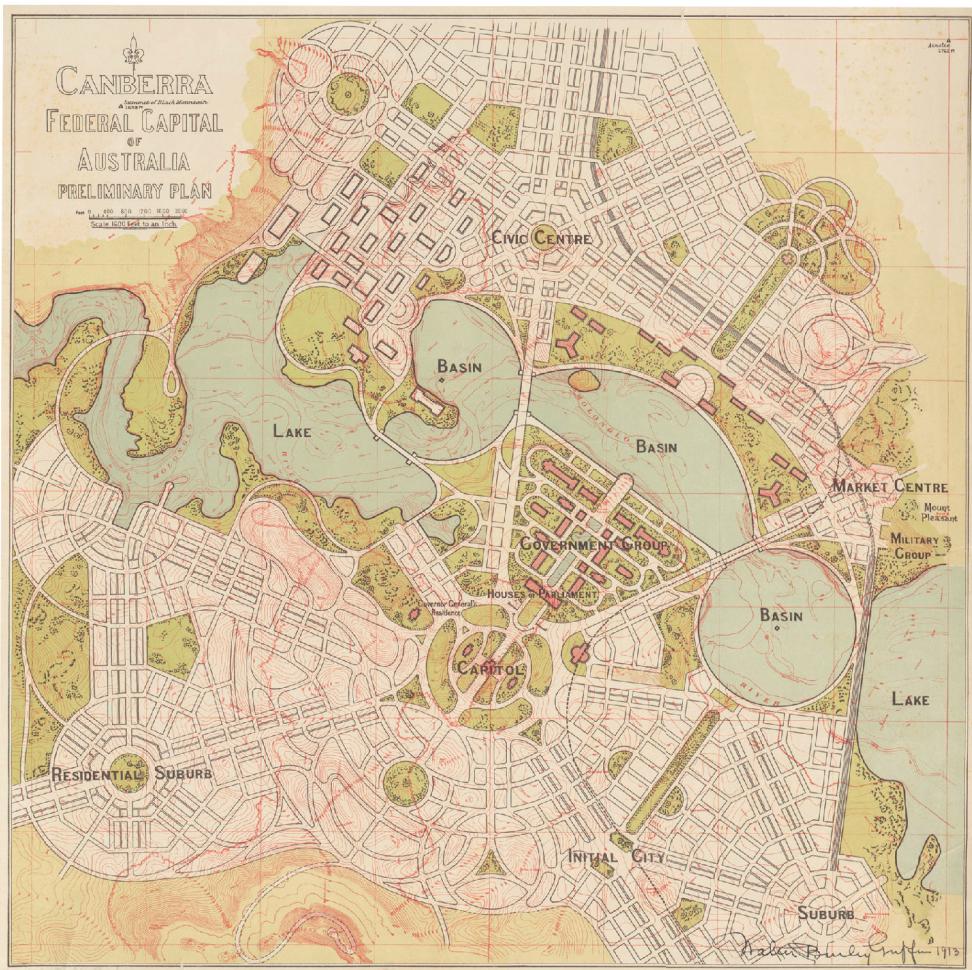
[fig1\_Chaos. *Cartoon from the Architectural Review (1904)*] As published in *Civic Art* (1922), p.1. LOC



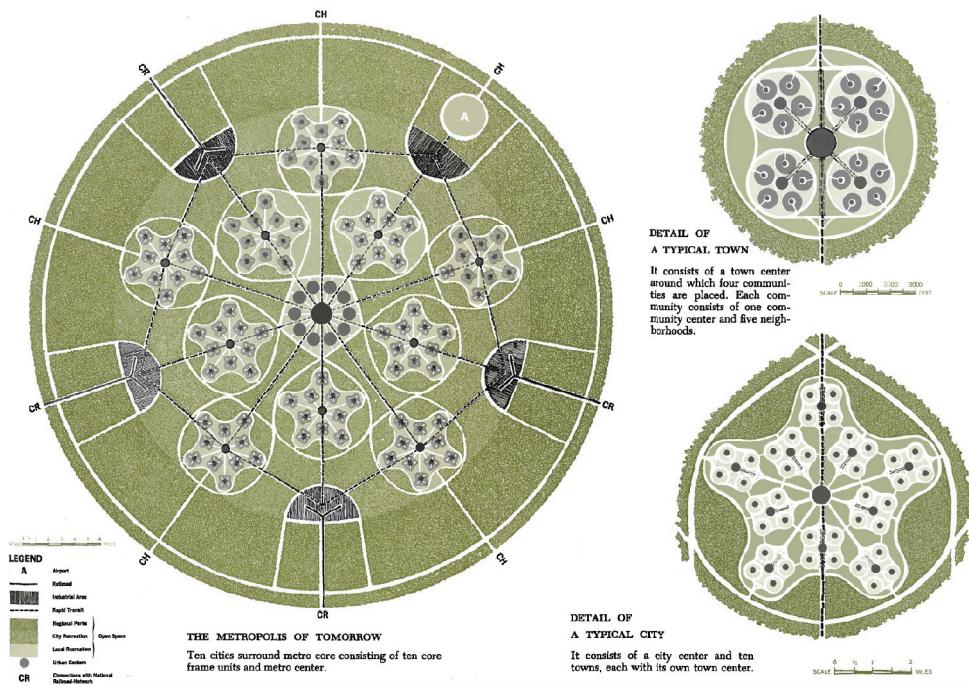
[fig2\_George Wallace, resisting integration (1963); Martin Luther King, assassination (1968)] (left) Attempting to block integration at the University of Alabama, Governor George Wallace stands defiantly at the door while being confronted by Deputy U.S. Attorney General Katzenbach. (image: Warren K. Leffler, U.S. News & World Report); (right) Civil rights leader Andrew Young (at left) and others standing on balcony of Lorraine motel pointing in direction of assailant after assassination of Dr. Martin Luther King, Jr., who is lying at their feet. (image: Joseph Louw, LIFE)



[fig3\_Bigram analysis] Percentage of English language books with the phrases 'urban design' and 'civic design', per year, 1800-2005 (<https://books.google.com/ngrams/info>)]



[fig4\_Canberra, Federal Capital of Australia, preliminary plan (1913)] Griffin, Mahony, et.al. NLA



[fig5\_Gruen, The Cellular Metropolis of Tomorrow (1964)] (Gruen 1964, foldout pp.272-73)

#### *vi. The Civic Design Legacy in Olmsted, Geddes and Wright*

The connection between Frederick Law Olmsted and civic design is clear, should any uncertainty remain we can point to the fact that Harvard's civic design program was founded by his son, and ignobly ended by Sert and his sponsors. The connection between Patrick Geddes and civic design is similarly clear, and again can be underlined by the fact that the first school of planning was founded by figures that were among the closest of his associates. When it comes to Frank Lloyd Wright the connection is somewhat more tenuous. Yes, he designed projects like the Monona Terrace, which was both a 'Civic Center' and 'Civic Auditorium.' And he often used the term 'civic' when referring to his design intent in project descriptions and essays. For example, his description of the *park system* he submitted to the City Club competition (1912-13) which he argued was in line with the best of what 'has been written, said, and done recently in relation to *civic planning* all over the world' and involved a 'civic theater' of his design.<sup>419</sup> We recall his praise of Jens Jensen in 1918, who he eulogized as Chicago's 'interpreter-in-chief,'

*...for our wonderful park system; a system that together with our small playgrounds is one of the finest civic-urban features of the world; a recreation ground beyond compare.*<sup>420</sup>

Addressing the architectural students at Princeton University in 1930, Wright spoke of his design aspirations for skyscrapers in civic terms:

*Were we to learn to limit such buildings to their proper places and give them the integrity...they deserve, we would be justly entitled to a spiritual pride in them...We might take genuine pride in them with civic integrity. The skyscraper might find infinite expression in variety - as beauty.*<sup>421</sup>

In an insightful commentary on the state of the art of civic design at that moment in history, in the same 1930 lecture he reflects on how 'the human element in the civic equation' of future cities is 'drifting' or being 'pushed', while issuing another sally in his rural urban polemic with Le Corbusier:

*...the eventual city the common [social] denominator will build...will not only be greatly different from the olden city or the city of today; it will be vastly different from the new machine-city of machine prophecy as we see it outlined by Le Corbusier and his school. What once made the city the great and powerful human interest that it was is now preparing the reaction that will drive the city somewhere, into something else. The human element in the civic equation may already be seen drifting or pushed going in several different directions.*<sup>422</sup>

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<sup>419</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.1: 1894-1930*, ed. Bruce Brooks Pfeiffer, vol. 1 (New York : Scottsdale, AZ: Rizzoli, 1992), 140, 143.

<sup>420</sup> Wright, 1:157.

<sup>421</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.2: 1930-1932*, ed. Bruce B. Pfeiffer, vol. 2 (New York : Scottsdale, AZ: Rizzoli, 1992), 67.

<sup>422</sup> Wright, 2:71.

Wright first mentioned ‘civic centers’ in *The Disappearing City* (1932), his first discourse on Broadacre City,<sup>423</sup> and goes on to design several of these – and with remarkably civic-minded innovations – notably in Madison (1938) and, Pittsburgh (1947), and Marin County, near San Francisco (year). In a pacifist wartime article titled ‘Defense’ that appeared in his self-published *Taliesin Square Paper* (no.4, July 1941) he advocates to ‘Make the universit[ies] civic centers for the people...’<sup>424</sup> In A Testament, written near the end of his life at the moment he was designing the last of his civic projects for Spring Green, he engages in a bit of generously revisionist history when he repeatedly refers to his mentor Louis Sullivan’s Chicago Auditorium building (1899) as ‘Chicago’s Civic Auditorium’.<sup>425</sup> Following this, on the very same page, is a subchapter titled ‘Monuments’ where he echoes the sentiment he’d expressed in his letter to Philip Johnson in 1943:

*The monumental should now be not so monumental as memorial. Owing to our sovereignty it is high time the scale of the human figure and its elemental, natural rhythms be put into the culture of our architects and by way of characteristic machine-age technique by T-square and triangle made to take the place of the unsightly grandomania of our early days as a nation. Witness our national capital and its progeny, our tributes to greatness. Ironical that a nation devoted to the upholding of law should have become so devoted to illegitimate architecture. But ‘the monument’ is still seen in the mere bigness or tallness that is not in itself natural but tries to match the chronic old syndrome of column, pilaster and cornice. Whereas the modern should have something more noble and appropriate to say. Architecture has no need for monumentality unless as a natural beauty. On any other terms, either public or private, size or tallness is not the point at issue. The question is, has it the significance of beauty natural to now.*<sup>426</sup>

Wright characterizes the quality he is after as ‘integrity’ and describes that ‘it is the same in a building as it is in a man.’ It is in this vein that on the following page he alludes to Emerson’s notion of ‘self-reliance,’ qualifies it as ‘self-possession,’ and relates it back to architecture, writing:

*Integrity? I believe I see it awakening here and there as a new American civic conscience. The great mother-art of architecture will not fail to envision and ennable the American life of our future. True to this emancipation the common man standing there beyond will be bravest and best of us and where he belongs. We – the people – must retrieve this environment of ours already so heavily mortgaged. Both the life of town and country now waste each other. Accelerated by the exaggerated motor car, these interchanges and mortgages are forged by the rail men, the pole-and-wire men, advertising men; the*

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<sup>423</sup> Frank Lloyd Wright, *Frank Lloyd Wright Collected Writings Vol.3: 1931-1939*, ed. Bruce Brooks Pfeiffer, vol. 3 (Rizzoli, 1992), 106.

<sup>424</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 4:82.

<sup>425</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 5:200.

<sup>426</sup> Wright, 5:200.

*realtor, the so-called "developer"- all defacing life. Call these conservative? Conservative should mean faithful maintenance at all costs of the free ideals for the sake of which our forefathers gave to every man in the country a stake in himself, as most glorious of all his privileges. Men truly "conservative" would not tolerate overwhelming violations of life, moving us toward the danger of mediocrity in high places. We should be less likely to allow an expedient conformity to frustrate our growth. Nor should we be willing to settle, by weight of mass opinion, for a bureaucratic economy...<sup>427</sup>*

He concludes his argument stating, 'A civic conscience is necessary to protect the new civilian freedom, promising more humanity than any promised before.'<sup>428</sup> In his final book, *The Living City*, he addresses the 'civic rights' of the neighbors of the skyscrapers he is criticizing as he makes his last pitch for Broadacre City:

*The shadows of these haphazard skyscrapers cast down below are significant. Their shadows are the surviving shadow-of-the-ancient-wall of the cave dweller...A tall building may be very beautiful, economical and desirable in itself - provided always that it is in no way interference with what lives below...by inhabiting a small green park. That park is humane now. The skyscraper is no longer sane unless in free green space. In the country it may stand beautiful for its own sake. Exaggerated perpendicularity has no such bill-of-health. It is now the terrible stricture of our big city. Whatever is perpendicular casts a shadow: shadows of the skyscraper fall aground and where crowded are an utterly selfish exploitation. Because, if the civic rights of the neighbor down there below, in the shadows, were to be exercised, there would be no 'skyscraping' at all. There would be only a general rise in urban floor-level...<sup>429</sup>*

Towards the end of the book Wright addresses his vision of 'the new city' admonishing architects to 'see civic life in terms of...economic freedom':

*...now a true simplicity by way of simples growing out of the free democratic citizen's own devotion to life on his own ground; the citizen himself something of a farmer there, free of all unfair exactions...The architecture of the city may now be basic. Yes. As architecture is basic to essential structure anywhere of the timeless sort we can now build. This is no less the structure of whatever is music, poetry, painting or sculpture - or whatever else man's interior sensibilities may thrive upon when disciplined from within by an ideal. Architecture must see civic life in terms of such human economic freedom as here prophesied; recognize native ground free as the sure basis of a free life in a free city.<sup>430</sup>*

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<sup>427</sup> Wright, 5:201.

<sup>428</sup> Wright, 5:204.

<sup>429</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1992, 3:272.

<sup>430</sup> Wright, *Frank Lloyd Wright Collected Writings*, 1995, 5:292.

Wright's consistent emphasis of civic values in Broadacre City is particularly suggestive in light of the fact that one of his early apprentices involved with the project was Kevin Lynch, who went on to prove himself a champion of those values.

Kevin Lynch (1918-84) was a Taliesin apprentice in the late 1930s, where he is credited with having worked with Wright on the Broadacre City models, and he went on to have a remarkable career in academia. Having left Taliesin in 1940, he studied Civic Design in Italy on a Ford Fellowship and was co-director of a three-year Rockefeller Foundation-funded research project on the perceptual form of the city. This resulted in *The Image of the City*, completed in December of 1959 and published in 1960. But before he arrived at this title, he had used the working title of *A New Look at Civic Design* – adopting that phrase as the title of an essay published in the Journal of Architectural Education in 1955.<sup>431</sup> In fact Lynch's book was published with another Rockefeller Foundation grant, and we already know the attitude of these sponsors from Sert's 1956 reflection that they preferred 'urban design' to 'civic design.'

*The Image of the City* was Lynch's first book, and it was also his most influential. Emphasizing perception as an important factor in urban form, his 'new look at civic design' was widely regarded as an instant classic. Hailed by the Architectural Forum as 'a readable, tautly organized, authoritative volume that might prove as important to city building as Camillo Sitte's *The Art of Building Cities*',<sup>432</sup> among the three reviews selected (evidently by Lynch) for publication on the book cover was the following perceptive review by David A. Crane for the Journal of the American Institute of Planners, addressing the relationship of Lynch's thinking in relation to Wright, and to the new discipline of urban design:

*This small and readable book makes one of the most important modern contributions to large-scale design theory . . . To understand Lynch's audacity, one must go back to 1953, the year when he began his studies in perception with a travel period in Italy. This was several years before all the 'urban design' conferences, before the coining of the phrase, and at a time when respectable planners were concerned with anything but the exploration of urban form. It took a rebellious young teacher...fired by the inspiration of F. L. Wright (his sometime mentor), to turn the tables on thirty years of planners' neglect.*<sup>433</sup>

Very little has been said on the relationship between Wright and Lynch – neither wrote much on the matter. But their correspondence was fairly regular from 1934-38, and twenty-one letters between Lynch and Wright are held in the archive – in nine instances the letters are exchanges with Wright's

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<sup>431</sup> Kevin Lynch, "A New Look at Civic Design," *Journal of Architectural Education* 10, no. 1 (Spring 1955): 31–33.

<sup>432</sup> Kevin Lynch, *The Image of the City*, Publication of the Joint Center for Urban Studies (Cambridge, Massachusetts: The MIT Press, 1960), n. dustjacket.

<sup>433</sup> Lynch, *The Image of the City*.

assistant Eugene Masselink, and in one it was a telegram from Lynch's fellow apprentice Robert Moser, who playfully signs it 'assistant secretary to Frank Lloyd Wright.' Here we find his 1934 'Application For Fellowship,' where he notes the religious affiliation of his parents as 'Roman Catholic,' his education as 'Yale – two years,' and qualifies his interest in painting with the word 'somewhat.' [fig6\_lyncb\_fellowship] The correspondence itself is of interest for any number of reasons, but it sheds little light on the question of civic design or even Lynch's work or thoughts on Broadacre City.

Although Lynch clearly had sustained enthusiasm for the notion of civic design, given the pattern we've observed in the work of academics that receive Rockefeller Foundation funding it comes as no surprise that he does not use the phrase in *Image of the City*. He uses the phrase *urban design* eight times in the book, the last reference is the phrase in the index, where he follows it with the qualification 'see City Design.'<sup>434</sup> So it is that we find that Jacobs' preferred phrase *city design* is also preferred by Lynch, and it appears no fewer than twenty-three times in the book. Regarding its contemporary relevance, David Grahame Shane has recently reassessed Lynch's *Image of the City* in terms of its perception-based innovations, and in the context of subsequent historical developments, emphasizing the inventory of forms identified by Lynch as being consistent with inventories of others both before and after Lynch, and highlighting his emphasis on what would come to be known as 'territorial figures':

*Kevin Lynch invented a terminology of heterogeneous urban systems to deal with the new urban situation, providing tools for the discussion of what later critics termed the "reverse city" (Viganò) or "net city" (Oswald), which are ultimately descended from Frank Lloyd Wright's Broadacre City, the city claiming vast landscapes. To enable us to track this new, decentralized reality Lynch shifted the focus of observation to large-scale systems. Here he found new urban patterns – stars, nets, constellations, and so forth – held together by modern communication and transportation systems as essential armatures.*<sup>435</sup>

Shane does not specify it, but it is relevant to our purpose to note that at this point Lynch's armatures were of two distinct types: *park systems*, and *highway systems*. Going on to describe Lynch's method of examining the 'lived reality' of small communities, cities, and urban fragments 'through psychological interviews and mapping projects,' Shane notes that Lynch undertakes the inventory in order to identify the "image of the city" as it lives in the minds of the city's inhabitants:

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<sup>434</sup> Lynch, 189, The other references to urban design are on pages 3, 14, 105, 113, 116, 118, and 140.

<sup>435</sup> David Grahame Shane, *Recombinant Urbanism: Conceptual Modeling in Architecture, Urban Design and City Theory*, 1 edition (Chichester, England ; Hoboken, NJ: Academy Press, 2005), 8–9.

*Unlike the Modernists, who simply condemned the sprawling megalopolis or the historic enclaves at its center, Lynch sought to uncover their inward logics as a matter of pragmatic concern.*<sup>436</sup>

Shane notes that Lynch gives ‘little guidance’ when it comes to how ‘the rational and irrational desires of urban actors’ tend to ‘exclude elements and actors who do not easily fit.’ In order to address ‘this problem’ of exclusivity that persists in Lynch’s thought, he writes:

*I turn to collage as an inclusive strategy, working from Rowe and Koetter’s Collage City (1978)...Collage City provides strategic method without giving a complex universe of models (these are provided by Lynch) or examining the many ways in which elements can combine and recombine across a broad city-territory.*<sup>437</sup>

Having read this I suspected that Shane’s use of the phrase ‘broad city-territory’ was a veiled reference back to Wright’s Broadacre City – a suspicion he later confirmed in conversation.

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Jane Jacobs’s *The Death and Life of American Cities* was published in 1961, the same year Kevin Lynch published *Image of the City* (he signed the introduction to the book from MIT on December 1959, following Wright’s death in April of that year). Like Lynch’s book, Jacobs’s was also funded by the Rockefeller Foundation – whom she generously thanks in the book’s acknowledgements:

*I am grateful also to the Rockefeller Foundation for the financial support which made my research and writing possible...*<sup>438</sup>

Interestingly, Jacobs uses neither the phrase *civic design* nor the phrase *urban design*, opting, where necessary, for the phrase ‘city design’ – and that is used only once. Like Lynch, who published *A New Look at Civic Design* (1955) as a summary of the arguments he would later make in *Image of the City* (1960), prior to publishing *The Death and Life of Great American Cities* (1961) Jacobs published her essential arguments in *Downtown Is for People* (1957), written for Fortune Magazine. This is particularly noteworthy, as it appears to be her only publication prior to the book. Like Lynch, her attention to *civic* references is notably more avid in the work published prior to receiving Rockefeller funding. She opens with an extended reflection on civic issues that merits citation here:

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<sup>436</sup> Shane, 8–9.

<sup>437</sup> Shane, 9.

<sup>438</sup> Lynch, *The Image of the City*, ii.

*This is a critical time for the future of the city. All over the country civic leaders and planners are preparing a series of redevelopment projects that will set the character of the center of our cities for generations to come. Great tracts, many blocks wide, are being razed; only a few cities have their new downtown projects already under construction; but almost every big city is getting ready to build, and the plans will soon be set. What will the projects look like? They will be spacious, parklike, and uncrowded. They will feature long green vistas. They will be stable and symmetrical and orderly. They will be clean, impressive, and monumental. They will have all the attributes of a well-kept, dignified cemetery.*

*And each project will look very much like the next one: the Golden Gateway office and apartment center planned for San Francisco; the Civic Center for New Orleans; the Lower Hill auditorium and apartment project for Pittsburgh; the Convention Center for Cleveland; the Quality Hill offices and apartments for Kansas City; the Capitol Hill project for Nashville. From city to city the architects' sketches conjure up the same dreary scene; here is no hint of individuality or whim or surprise, no hint that here is a city with a tradition and flavor all its own. These projects will not revitalize downtown; they will deaden it. For they work at cross-purposes to the city.<sup>439</sup>*

The top-down planning Jacobs was to fight most vehemently, and with success, was that for her own neighborhood. *[fig7\_jacobs\_washington\_square]* For those familiar with the current situation at Washington Square Park, those 1950s era plans are utterly incomprehensible – and her critique of those plans is reflected in her first essay, matched with generous praise for Victor Gruen, who would later cite her work in turn, if somewhat less generously:

*[These urban projects] banish the street. They banish its function. They banish its variety. There is one notable exception, the Gruen plan for Fort Worth; ironically, the main point of it has been missed by the many cities that plan to imitate it. Almost without exception the projects have one standard solution for every need: commerce, medicine, culture, government – whatever the activity, they take a part of the city's life, abstract it from the hustle and bustle of downtown, and set it, like a self-sufficient island, in majestic isolation... The architects, planners – and businessmen - are seized with dreams of order, and they have become fascinated with scale models and bird's-eye views... The logic of the projects is the logic of egocentric children, playing with pretty blocks and shouting "See what I made!" - a viewpoint much cultivated in our schools of architecture and design. And citizens who should know better are so fascinated by the sheer process of rebuilding that the end results are secondary to them.*

*With such an approach, the end results will be about as helpful to the city as the dated relics of the City Beautiful movement, which in the early years of this century was going to rejuvenate the city by*

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<sup>439</sup> William H. Whyte, *The Exploding Metropolis*, 1993rd ed. (University of California Press, 1957), 157.

*making it parklike, spacious, and monumental. For the underlying intricacy, and the life that makes downtown worth fixing at all, can never be fostered synthetically. No one can find what will work for our cities by looking at the boulevards of Paris, as the City Beautiful people did; and they can't find it by looking at suburban garden cities, manipulating scale models, or inventing dream cities. You've got to get out and walk. Walk, and you will see that many of the assumptions on which the projects depend are visibly wrong...*<sup>440</sup>

Whatever else their differences, Jacobs and Lynch had this in common – their methodology involved walking the city. Indeed, Jacobs duly refers to Lynch in this first essay, referring to him as a ‘faculty member of M.I.T.’ who ‘made a study of what walkers in downtown Boston notice.’<sup>441</sup> Indeed, Lynch’s survey methods also included drawing and diagram making – and his approach is an explicitly graphic mode of design analysis, anticipating Christopher Alexander’s Ph.D. dissertation *Notes on the Synthesis of Form* (written in 1961 but published in 1964) and his notion of the ‘operative diagram.’ Alexander’s notion of ‘good fit’ also has an interesting relation to Richard Sennett’s ‘loose fit,’ to which we will return in the final chapter.<sup>442</sup>

Olmsted, Geddes, Wright and Lynch and Alexander all made use of one form or another of ‘diagrammatic conceptualization’ as the means by which to conceive of form. Their Chicago colleague Daniel Burnham memorably addressed the matter to an audience in London in 1910:

*...a noble logical diagram once recorded will never die; long after we are gone it will be a living thing asserting itself with ever-growing consistency...*<sup>443</sup>

One has the sense that he is thinking of a higher order of logic. As with physicist Richard Feynman’s success in representing the complex dynamics of quantum field theory with the creation of ‘Feynman diagrams’ in 1948, the ability to employ exploratory, abductive reasoning – what architects refer to as ‘sketching’ – is fundamental to the design disciplines. Like design narratives, drawings can communicate facts, but they can also be the means of exploring relations. A map is useful if you need to go somewhere, whereas a ‘noble’ diagram will show you something you didn’t know when you sat to make it. What you learn may not be factual, exactly – it may be a principle. Often it is better to be generally right than precisely wrong. In this way diagrams and sketches work in concert with a repertoire of heuristics and narratives.

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<sup>440</sup> Whyte, 158–59.

<sup>441</sup> Whyte, 164.

<sup>442</sup> Sennett, *Making Dwelling*.

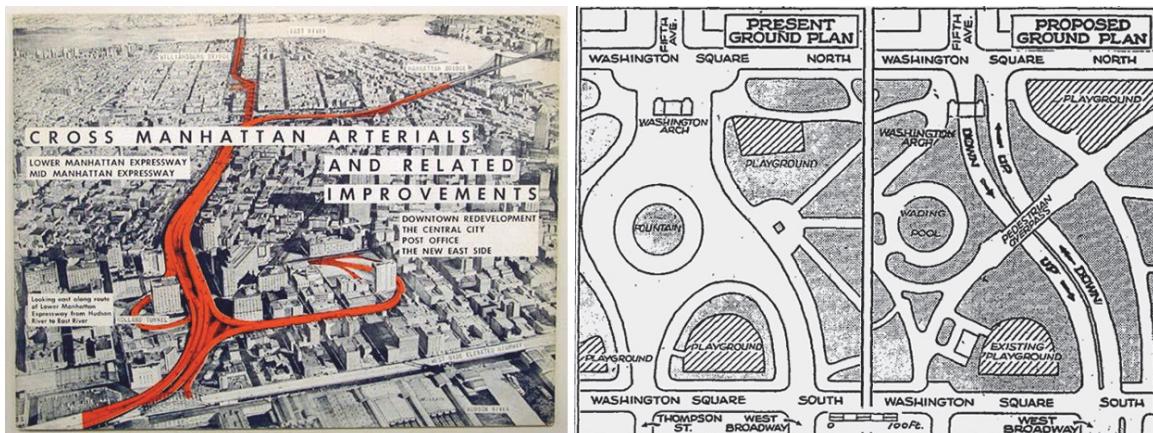
<sup>443</sup> As cited in: Edmund N. Bacon, *Design of Cities* (Penguin Books, 1976), ii.

What is the current disciplinary role of thinking by drawing? As distinct from being a data analyst, being an informed interpreter? How are heuristics used and created in this way, and what is the role of heuristics in communicating form determinants, first principles of design – throughout the design process, with other disciplines and to the public at large? Such questions as these take on a distinctly different hue when seen through the lens of *civic design*. In fact these are questions that are answered in practice every day, and we'll do well to follow Jane Jacobs advice and ‘study what works.’ The following two projects provide inspiring subject matter in this regard, employing narrative, heuristics, and diagrams to arrive at designs whose apparent novelty belies their profoundly common sense. They are the final projects of this *civic design* chronology, and represent in my mind the culminating apex of *park systems* evolution.

1934

| APPLICATION FOR FELLOWSHIP   |   |        |              |              |        |                          |                        |
|--|---|--------|--------------|--------------|--------|--------------------------|------------------------|
| NAME AND ADDRESS   | Kevin Andrew Lynch  |        |              |              |        |                          |                        |
| AGE  | 19  | WEIGHT | 150          | HEIGHT       | 5'-10" | PARENTS LIVING AND WHERE | 507 Erie place Chicago |
| RELIGIOUS AFFILIATION OF PARENTS   | Roman Catholic  |        |              |              |        |                          |                        |
| WHAT EDUCATION   | Yale - two years.   |        |              |              |        |                          |                        |
| PREVIOUS OCCUPATION  | Student   |        |              |              |        |                          |                        |
| PREDISPOSITION FOR WHAT ART EXPRESSION:  |   |        | ARCHITECTURE | Architecture |        |                          |                        |
|  |   |        | MUSIC        |              |        |                          |                        |
|  |   |        | PAINTING     | Somewhat     |        |                          |                        |
|  |   |        | SCULPTURE    |              |        |                          |                        |
|  |   |        | CRAFTS       |              |        |                          |                        |
| THREE REFERENCES   | Professor Wolfgang — Yale University.<br>Mayer Marks — 530 Irving Pl Blvd Chicago<br>Andrew Seton — Chestnut Street Chicago |        |              |              |        |                          |                        |
| INFORM US IN DETAIL, ON A SEPARATE SHEET, OF YOUR EXPERIENCE IN ALL THE ARTS LISTED ON THIS SHEET. |   |        |              |              |        |                          |                        |

[fig6\_Kevin Lynch's application to the Taliesin Fellowship, 1934] FLLW



[fig7\_Cross Manhattan Arterials and Related Improvements (1955)] LOC

### *1962\_Lloyd Wright's Corridors*

Frank Lloyd Wright, Jr. (1890-1978) was the first son of the famous architect, and was an architect himself – he was also a landscape architect. He preferred to be called Lloyd Wright, and much of the literature about him understandably explores at length his inevitably complex relationship with his father. I came to know Eric Lloyd Wright, his son – and Frank Lloyd Wright’s grandson – and it was he who introduced me to this previously unpublished project, his father’s ‘Study for a Los Angeles Regional Urban Plan’ (1962). *[fig8\_lloyd-wright\_la-plan]* This *regional park system* project makes a unique contribution to the *civic design* chronology, while illuminating another facet of the Wright family story that has not been known, and highlighting the intergenerational nature of the inspired motivations and community commitments involved in the design and creation of *park systems*.

The project was Lloyd Wright’s final regional plan for Los Angeles after having been involved with three others: first with Olmsted in 1930, and two others in the 1940s. According to his son Eric, the scheme reflects his continued interest in nature conservation and his growing fascination with progressive technologies and transportation. Anticipating Space X by no less than five decades, the plan includes several rocket ports. In the accompanying text, Lloyd Wright champions preservation of the unique natural character of the region, and argues that this plan would, among other things, ‘ease labor and promote ethnic integration through automation,’ ‘transform war-making production into human services,’ and create ‘architectural beauty and nobility.’<sup>444</sup>

At first the project appears to be another instance of an architect imposing a two-dimensional circular geometry on a multi-dimensional landscape – but there is a twist. Lloyd Wright is a landscape architect, and this is an elicited figure: the circle is a *via negativa* formal reading that interpolates between ecological conditions as they were historically documented in the Olmsted Los Angeles regional plan of 1930, and as they were when these drawings were made in 1962. The entire figure consists of a network of ecological corridors – but that term was not yet in use, and Lloyd Wright simply called it a *regional park system*. What seems to be a closed form is actually an ecological armature, providing for pedestrian and bicycle mobility throughout the city. The circle is a similar corridor, a continuous park loop, only in addition to serving pedestrians and cyclists it is also a transportation loop for cars and a metro system. Three of the other axes serve these multiple functions, one north-south, one west-east, and one effectively following the coastline. The resulting compass-like territorial figure suggests the intuitive clarity of the form – a form that manages, with two concentric circles and an asymmetric cross, to land within a half kilometer of the majority of the city’s highly heterogeneous existing neighborhoods. These ecological corridors thread between these neighborhoods, stitching them together with a form that – with a little cut and fill – meets nature halfway.

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<sup>444</sup> Alan Weintraub, *Lloyd Wright* (New York: Harry N. Abrams, 1998), 266.

The set of presentation sheets consist of five 38 x 48 inch drawings: a cover sheet with a territorial figure treated graphically in black and red, the regional plan and the urban plan, described above, and two sheets with two sets of corresponding sections and plans on each. There are two sets of these presentation drawings, the original pencil drawings, and a blue-line set delicately elaborated in colored pencil. Each of the plan drawings include one or more illustrated sections, and the section and plan drawings employ particularly Geddes-like *valley section* thinking – but in their format they are unlike anything else I've found in the civic design repertoire, or elsewhere, for that matter. *[fig9\_lloyd\_wright\_sections]* I am familiar that a format following a similar principle was popularized by innovative landscape architecture practices in the 1990's, but within a decade the format seems largely to have been replaced with more 'realistic' illustrated *axonometric* sections. The visual correlation of two plans and two section on each sheet allows one's imagination to interpolate the space between the sections, based on the scale of the plans, and further informs one's sense of the plan drawing in a way that a series of illustrative axonometric drawings, however suggestive, simply do not. Because of their content, these drawings would be an important discovery even if the format were ordinary – but in fact the drawings are also made with an extraordinary level of craftsmanship, as the following detail, approximately full scale, illustrates. *[fig10\_lloyd\_wright\_section\_detail]*

The project was prepared by Lloyd Wright along with Eric and a Japanese draftsman hired specifically to assist with the final drawings. Eric described to me that his father had worked on the 1930 project with the Olmsted studio – in what capacity and to what extent he did not know – but he said that the first assignment his father gave him was to visit the archive and view the drawings of the 1930 plan, redrawing them in their essence so as to inform the new project Lloyd Wright had in mind. *[fig11\_olmsted\_lloyd-wright]* When I pressed him for details, hoping I might see these first interpretive drawings he had made, he demurred, saying only, "They were really just sketches." Both Lloyd Wright and Eric knew the city intimately, and Eric explained that the sketches he made were like caricatures of the 'essential form' of the Olmsted proposal, annotated to point out key areas and features. These 'caricatures' were translated into sketch-plans that were drawn on trace paper over a 1961 map of the city.

Lloyd Wright's archive is held at UCLA Library, and fortunately the box containing this project also contains ample evidence to illustrate Eric's memory of work done more than five decades ago. The city map was luckily also kept in the box with the drawings – with one of the sketches still taped to it, evidently a final study of topographic contours for cut and fill. There are over twenty of the overall regional park system sketches Eric had described as having been made at the scale of the map, of which two characteristic examples are shown. *[fig12\_lloyd\_wright\_circle\_sketches]* In the bottom left area of the circle is an area with the densest intersection of corridors: this is the location of the *civic center* Lloyd Wright proposed for the scheme, clearly the centerpiece of the design. In the sketch at left the *civic center* is connected by a canal system with one axis to the beach and two northeast-oriented

axes converging at a point in the upper right quadrant - whereas in the sketch at right these northeast axes are at obtuse angles to the *civic center*, and rather than being water canals they are tree-lined boulevards.

Such variations are similarly played out for details large and small through sketch variants – each element or configuration was tentatively sketched, worked out, and then incorporated or left to the side. There are also about twenty sketches of the *civic center* itself, although a precise count is not entirely straightforward – many of the sheets having several versions of the plan, along with notes and occasionally thumbnail perspectives, like the one shown in this example. *[fig13\_lloyd\_wright\_civic\_center]* We can recognize that Lloyd Wright is working within, if at the edge, of one of *civic designer's* favored formal traditions, exploring various permutations of ‘the trope’ in these sketches, with various degrees of formality.

There are also about twenty sketch fragments of varying sizes, of which two are shown here. *[fig14\_lloyd\_wright\_fragments]* At left is a sketch an area where a bridge crosses one of the transportation corridors with a canal, the bridge is shown in elevation above and in plan below, and the drawing is annotated with ‘parkway,’ ‘pacific ocean,’ ‘houseboat floating village,’ and ‘future parkway.’ At right is a sketch that at first glace appears to be an inventory of ten corridor typologies – however taking note of the dotted rectangle at the bottom left, which also appears on the double section and plan sheets, we see that these are ‘bundles’ of multi-modal transit corridors, including little cars and annotation that reads, ‘station,’ and ‘bicycle.’ In addition to these sketch fragments there are about two-dozen thoroughly detailed sketches made in the parallel section and plan format, and it is clear that these sketches were used as the nearly completed basis for the final presentation drawings. The example shown features ‘rapid transit,’ underground parking, and a lake with houseboats – this drawing stands out as being particularly poignant, because the sketch taped to it is one of Lloyd Wright’s father’s sketches of the houseboats he had sketched for a project they had designed together for Lake Tahoe in 1922. *[fig15\_lloyd\_wright\_homage]*

Having picked up this sketch, I was struck by the thought that Lloyd Wright’s project must have been, in some sense, an homage to his father. This *regional park system* was created just three years after Frank Lloyd Wright’s death – and the plan was prepared, much like Wright’s *regional highway and park system* and final series of projects for the Jones Valley – pro-bono, and without a specific client. He we have, I thought, a further synthesis of the Broadacre City idea – which we know Lloyd Wright was closely involved with from long before the project had a name. This is clearly attested to by the presence of this early sketch, taped to his later drawing. It was during the time they spent together visiting Lake Tahoe that Wright sketched this boathouse. It was one of at least six variations, and the color perspectives of these that they produced together are of a geometric variety and virtuosic complexity of that is uncommon even in Wright’s repertoire. *[fig13\_tahoe\_boats]* The FLLW

archives have a panoramic photograph taken from the site, and Eric Wright believes that it was taken by his father Lloyd on that initial site visit. *[fig14\_tahoe-panorama]*

Lloyd had spent such productive leisure time drawing with his father since his early childhood, and when he was 18 years old he joined his father in Fiesole, Italy, where they set up a drafting studio and produced the drawings for the exuberant *Wasmuth portfolio*, published several subtle colors of metallic ink on Japanese paper in Germany in 1911, and again in 1914 in a more compact budget format. *[fig18\_lloyd\_wright\_wasmuth]* The book contributed to Wright's fame in Europe, but even before it had been published Wright had effectively ended his marriage to Catherine Lee (nee: Tobin). After a long cold winter, and having completed his work for the publication, Lloyd had returned from Italy to what must have been a difficult and uncertain reality at home in Oak Park.

With a decisive act that is regrettably not clarified by any of the other archival material that I've found, or that Eric is aware of – and that is still somewhat surreal to me – Lloyd soon undertook an apprenticeship at Frederick Law Olmsted Jr.'s studio at Fairstead in Brookline, Massachusetts. I did find that his timesheets are held at the Olmsted archive at Fairstead, which show that he commenced work at the Fairstead studio on April 11, 1910 – apparently less than a month after his return to Oak Park. *[fig19\_lloyd\_wright\_timesheets]* The example shows a period of seven months during which Lloyd generally worked about 40 hours a week – earning about 12 dollars and 30 cents per week, at 30 cents per hour. Eric says understands that after October of 2010 Lloyd spent November and December in Oak Park with his mother and siblings, and then left for San Diego in the spring of 1911. His younger brother John Lloyd Wright (1892-1972) – then 19 years old – joined him soon after.

The precise dates in this period are uncertain, however, and we are still looking for additional information about it. It is generally known that Lloyd specifically went to California because he was working with the Olmsted studio to set up the tree and plant nursery for The Panama-California Exposition, for which they'd received the design commission. Lloyd Wright is believed to have arranged the nursery, but by September the Olmsted studio had quit the project, evidently out of a complex situation that saw no less than five architects who quit or were fired from the project. Lloyd evidently stayed on the project, and later entered into partnership practicing landscape architecture with Paul Thiene, a friend who had been a 'nursery superintendent' for the exposition, arranging the planting for the botanic gardens.<sup>445</sup> *[fig20\_san\_diego\_panama]* The plan is replete with instances of 'the trope,' as shows the monumental courtyard in photograph at left – whose imaginative designation was 'La Laguna de Las Flores, The Arcade at the Panama-California Exposition. We also know that Frank Lloyd Wright visited his sons in San Diego in 1913, and attended the opening of the Exposition in 1915 (it was open until 1917) – and that it was here that Wright saw detailed models and

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<sup>445</sup> Richard W. Amero, "The Making of the Panama-California Exposition, 1909-1915," ed. Thomas L. Scharf, *San Diego Historical Society Quarterly* 36, no. 1 (Winter 1990), <http://www.sandiegohistory.org/journal/1990/january/expo/>.

reconstruction drawings of the stone Mayan architecture that affected him strongly, and marked his transition to a period of nearly ten years in which concrete receives most of his attention.<sup>446</sup>

Among the drawings in Lloyd Wright's archive at UCLA, I also found a drawing that brings together many of the themes from this period: it is a perspective view Lloyd made in the style of his Wasmuth drawings with his father. The view is of a house that was designed in 1911 by the innovative San Diego-based architect Irving Gill (1870-1936), widely regarded for his pioneering work in concrete houses built of 'tilt-up' precast panels. The design is for Marion Olmsted (1861-1948), the eldest daughter of Frederick Law Olmsted and Mary Perkins – and sister to Olmsted Jr. and John Olmsted, the three Olmsted children to have lived at Fairsted. Marion was twenty-two years old when the family moved to Brookline. Marion reportedly possessed genuine artistic talent, and is known to have been involved designing landscapes. It is known with certainty that she drew plans for Felsted, the family's home in Maine, but any further contributions she may have made to the Olmsted firm remains uncredited. When Gill published the design in *The Craftsman* he boldly labeled the modest drawing, *The Home of the Future: The New Architecture of the West*.<sup>447</sup>

Frank Lloyd Wright was clearly encouraged by his son's success in California, and Lloyd soon found a number of clients for his father, prompting him to spend longer periods there in which they worked together on many projects: an early project that anticipated the visionary qualities of the Lake Tahoe project in 1922 was Doheny Ranch (1921), actually a community plan with no fewer than 18 individual buildings stitched together along a continuous circuit through the hills.

*[fig21\_wright\_doheny]*

Throughout this period Lloyd was responsible for supervising construction of the Hollyhock House for Aline Barnsdall, a client he had introduced to his father. Lloyd was also responsible for an advanced water circuit that was to flow throughout the project site, as is shown in this view of the last of the design Wright made for the site in 1923 – a kindergarten for neighborhood children.

*[fig22\_wright\_little\_dipper]* That same year Lloyd also introduced his father to Albert M. Johnson a wealthy client who hired Wright to design a complex in Death Valley, where he'd acquired land.

*[fig23\_wright\_am\_johnson]* The project is remarkable in at least three respects. First, it is the only 'adaptive-reuse' project I know of in Wright's repertoire, connecting five existing buildings with a series of walls. Second, it is a very early example of Wright's use of 'the reflex' – a geometric concept Wright related to John Dewey's idea of the 'reflex arc' in psychology – adding a chapel to the complex at 30 degree angle to the existing buildings. *[fig24\_wright\_reflex]* Third, the entire complex is organized around a terrace created by the retaining wall built for the roadway, capturing the infrequent but intense rainfall from the mountain behind, filtering it through a series of terraced gardens, and

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<sup>446</sup> Anthony Alofsin, *Frank Lloyd Wright: The Lost Years, 1910-1922* (Chicago: Univ. of Chicago, 1993), 371.

<sup>447</sup> Irving Gill, "Small Homes for a Great Country," *The Craftsman*, May 1916.

collecting it basins below – creating a cooling microclimate at the heart of the complex.

*[fig25\_wright\_model]*

In 1925 various civic leaders had proposed establishing a commission to create a memorable visual image of the City of the Angels in the form of a ‘civic center’ that would also city administration with operational space.<sup>448</sup> San Francisco, Los Angeles’ perpetual competitor, was then building a new civic center in pseudo-classical mode, clearly providing additional stimulus to their motivation.<sup>449</sup> Many of the major architectural firms in Los Angeles joined forces and formed the *Allied Architects Association of Los Angeles*. In effect, the association became a sort of architectural cartel controlling the awarding of city and county governmental commissions and parcelling them out to one or another of their firms. This was an adroit move for these large firms, enabling them to seal off competition while presenting a self-sacrificing public image.<sup>450</sup>

By his own account, Lloyd was – like his father – generally disinclined to participate in competitions, and it was the fact of this monopoly that motivated Lloyd to propose his own Civic Center design. *[fig26\_lloyd\_wright\_civic\_view]* A text describing the project, prepared with Lloyd for his final exhibition, notes that the design he submitted ‘was fully within the tradition of the grand scheme of the City Beautiful movement,’ and that ‘the precisely controlled disposition of the buildings, their accompanying gardens and terraces, comes right out of the Paris Beaux Arts tradition.’<sup>451</sup>

*[fig27\_lloyd\_wright\_civic\_plan]* The plan is characterized by a dominant cruciform layout of buildings and services, and a horizontally layered arrangement for terraces, gardens transportation: rapid transit and ‘speedways’ roadways are situated below grade at the base of the scheme, slow moving vehicles for delivery are at grade, pedestrian causeways weave through the buildings, and airplane landing fields are provided in close proximity.<sup>452</sup> The project was positively reviewed when it was published in the *Los Angeles Times*, lavishly illustrated with seven images, and praised as ‘a civic center more magnificent than the hanging gardens of Babylon.’<sup>453</sup> The project was not built, but Lloyd was clearly encouraged by the positive response, and later that year Lloyd proposed an audacious project for a building that was heralded as a ‘Perfect City of Future’ the *Los Angeles Examiner*:

*The city of the future, rising on the sites of the present crowded, unplanned and unbeautiful metropolises, will be scientifically arranged and esthetically designed structures...<sup>454</sup>*

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<sup>448</sup> Weintraub, *Lloyd Wright*, 37.

<sup>449</sup> David Gebhard and Harriette von Breton, *Lloyd Wright, Architect: 20th Century Architecture in an Organic Exhibition*, 1st edition (Art Galleries, University of California, Santa Barbara, 1971), 45.

<sup>450</sup> Gebhard and von Breton, 46.

<sup>451</sup> Gebhard and von Breton, 46.

<sup>452</sup> Gebhard and von Breton, 45–46.

<sup>453</sup> “Notable Civic Center Scheme,” *Los Angeles Times*, August 30, 1925, sec. 5.

<sup>454</sup> “Perfect City of the Future Is Pictured by Noted Architect,” *Los Angeles Examiner*, November 26, 1926.

Lloyd envisioned the ‘future city’ as a cruciform-shaped megastructure 1,000 feet high with 40 acres of floor area, built of steel and reinforced concrete with a earthquake-proof floating foundation – derived from his father’s Imperial Hotel scheme (1922). [fig28\_lloyd\_wright\_future\_city] A thin vertical shaft runs the vertical length of the building, and is surmounted by seven layered airplane landing fields. Like his civic center project of earlier that year, the base of the structure was articulated by multiple levels of train, auto and pedestrian circulation, but here he adds dirigible masts, as well. Built in the center of a 20-mile district, this ‘city’ would be surrounded by parks, farms, and forests, all ‘easily accessible; within five minutes run from buildings.’<sup>455</sup> The degree of similarity between Lloyd’s two projects of 1925 and Le Corbusier’s *Plan Voison* of the same year is noteworthy, and we know that both Lloyd and his father had read and appreciated *Vers une Architecture* (1923) when it was translated into English and published in 1927 – but further scholarship is required to apprehend the relationship between Le Corbusier’s early civic projects and those of Lloyd Wright.

The public attention led to Lloyd’s commission to design the orchestra shell for the Hollywood Bowl, the summer home of the Los Angeles Philharmonic. Owned by the County of Los Angeles, the Hollywood Bowl is also the home of the Hollywood Bowl Orchestra (since 1929), and still hosts hundreds of musical events each year. The name refers to the topographic ‘bowl’ shape of the concave hillside where the amphitheater is sited. Wright designed the first orchestra shell in the shape of a stepped pyramid, a form Lloyd said was derived from Native American motifs, and it was widely praised for its excellent acoustics.<sup>456</sup> [fig16\_lloyd\_wright\_hollywood-bowl] This first shell had been designed so that the demountable shell could be disassembled easily for other events and stored in the off season, but the building elements were badly damaged at the end of the first season – having been improperly stored, and thus receiving water damage – and the next year Lloyd was commissioned to design a new shell.

This time Lloyd adopted a curvilinear form, assembled from a series of hollow wooden rings bound together with steel rods and turnbuckles for tension. The acoustics of this shell astonished audiences and performers alike - with the flat surfaces of the rings angled directly above the orchestra for reflection and distribution, the shell was said to have resonated like a stringed instrument.<sup>457</sup> Like the first shell, the second one was demountable and intended to be stored during the rainy winter months. For two years the operation successfully coordinated the shell’s seasonal mounting and demounting, but again at the end of Hollywood Bowl’s third season the wooden shell became damaged, and in 1929 the management hired the Allied Architects Association to replace it with a steel

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<sup>455</sup> Weintraub, *Lloyd Wright*, 240.

<sup>456</sup> Weintraub, 242.

<sup>457</sup> Weintraub, 242.

shell.<sup>458</sup> Needless to say, Lloyd was disappointed, and the acoustics at the Hollywood Bowl were never as good as they had been the first three years it was in operation.

Nevertheless, two other noteworthy projects that Lloyd developed at the end of the 1920s give a sense of the intimacy of the landscape/architect and his father. Lloyd Wright built his own home, a wonderfully modest interpretation of the asymmetrical design they had developed together in the first part of the decade for Doheny Ranch, and built in the immediate vicinity of that earlier work on Doheny Drive. [*fig30\_Lloyd wright home studio*] And it was here that Lloyd created a drawing that is among the most beautiful examples in the Frank Lloyd Wright archives – his epic night view rendering of his father's design for the San Marcos In-the-Desert resort on Maricopa Mesa in Arizona. [*fig31\_Lloyd wright\_night view*] The image captures, in a grand panorama, the building in the foreground, nestled into the foothills of the mountain range whose distant peaks are shown in blue, flecked with metallic gold. Eric describes that the technique his father used was simply to take a toothbrush dipped in gold paint, drawing his thumb across its bristles to achieve this spray of starry articulation.

Just left of center the image highlights the watercourse Lloyd had designed as a central feature in his father's design, shown in vivid blue against the golden foreground. Employing a similar strategy as he had deployed for the Barnsdall House earlier in the decade, in this case the water feature is distinctly reminiscent of German architect Bruno Taut's vision of cascading alpine waterfalls – published in *Alpine Architecture* in 1917 – and anticipates the central gesture of his father's famed *Fallingwater* house of 1936. Lloyd's role as landscape architect in many of his father's projects has gone largely unacknowledged, and this remains a subject for further scholarship.

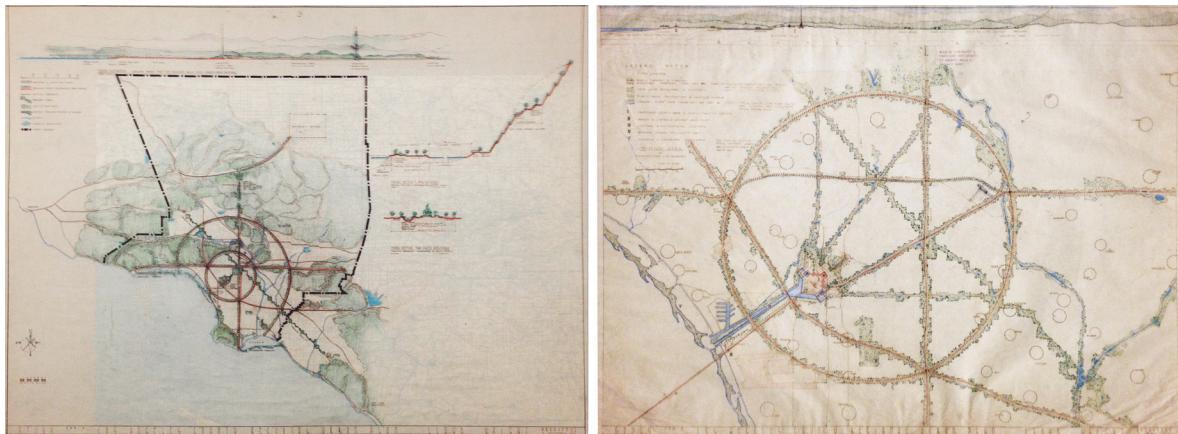
Lloyd Wright's archives at UCLA contain material pertaining to several of his father's projects, including the landscape plans for the Barnsdall House and its innovative design for a system of watercourses. There are also no fewer than three boxes filled with material pertaining to his participation in the Regional Plan Association of Southern California, sister organization to New York's Regional Plan Association, and another box he labeled 'Regional Planning – early rough notes'. Other projects of interest include an urban plan for Los Angeles (1961), a Civic Park for Dallas (1970). The archival material further shows that Lloyd maintained correspondence with landscape architect and noted conservationist Jens Jensen, and helped to found the Southern California chapter of Jensen's ecological advocacy organization, *Friends of Our Native Landscapes*.

Among Lloyd's texts one of the most suggestive in terms of our interests is one of his last: *New Culture and Urban Ecology* was written in 1977, the year before he passed away, and takes a critical view of the priority technological development had taken in his lifetime. He takes particular issue with the corporate culture at places like IBM and Honeywell, companies with known military-industrial ties,

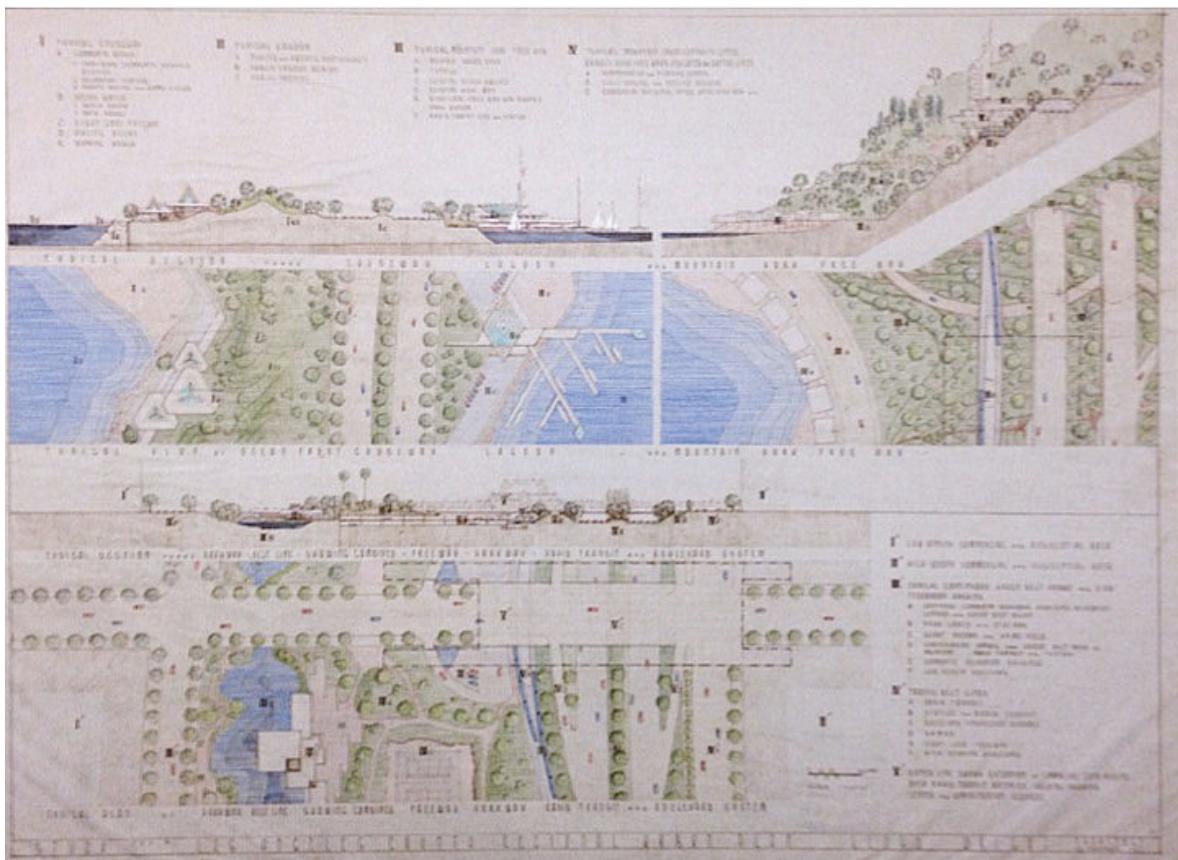
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<sup>458</sup> Gebhard and von Breton, *Lloyd Wright, Architect: 20th Century Architecture in an Organic Exhibition*, 44.

and advocates that equivalent priority rather ought to be given to ecological and cultural initiatives.<sup>459</sup> These values are clearly reflected in Lloyd Wright's 1962 regional park system for Los Angeles – a project that single-handedly demonstrates the compatibility, and continuity of thought, between the ecological import of Olmsted's *park systems*, the sociological insights of Patrick Geddes' *valley section*, and the architectural and cultural ambition of Frank Lloyd Wright's *Broadacre City*.

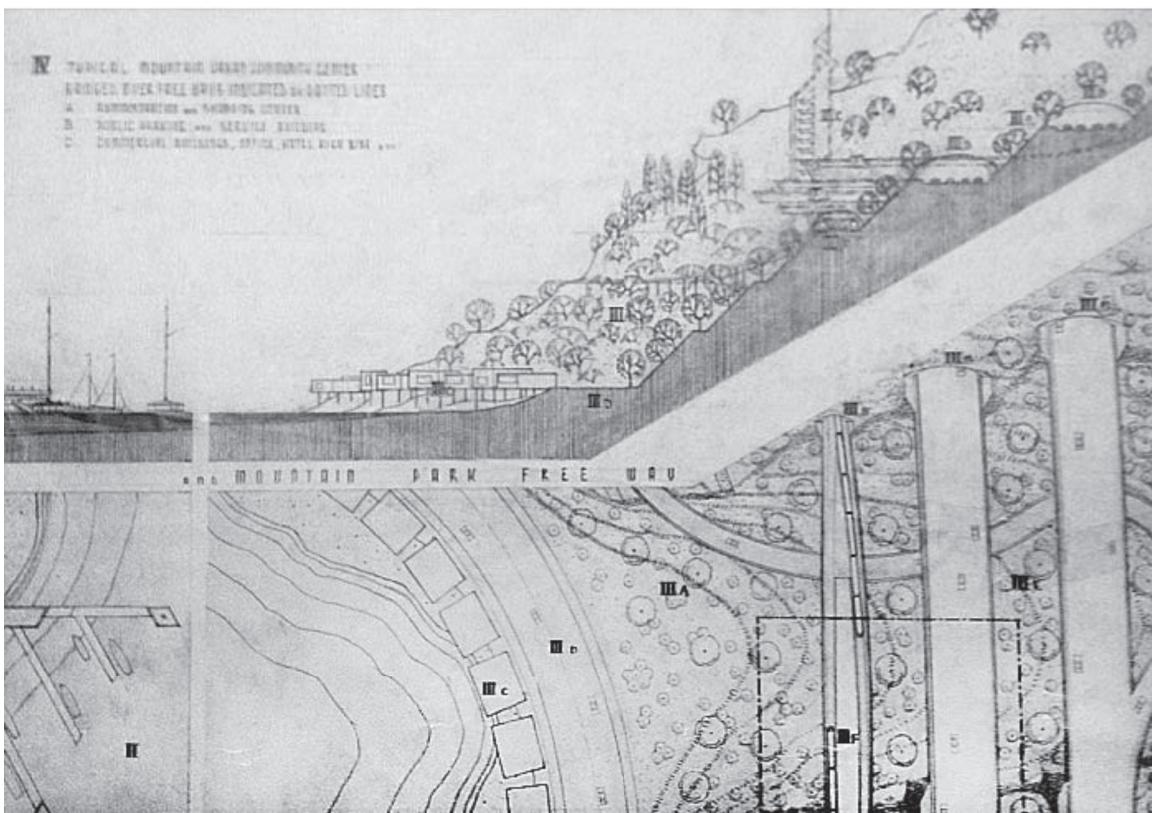


[fig8\_Study for a Los Angeles Regional Urban Plan (1962)] (left) Regional Plan; (right) Urban Plan. LWA

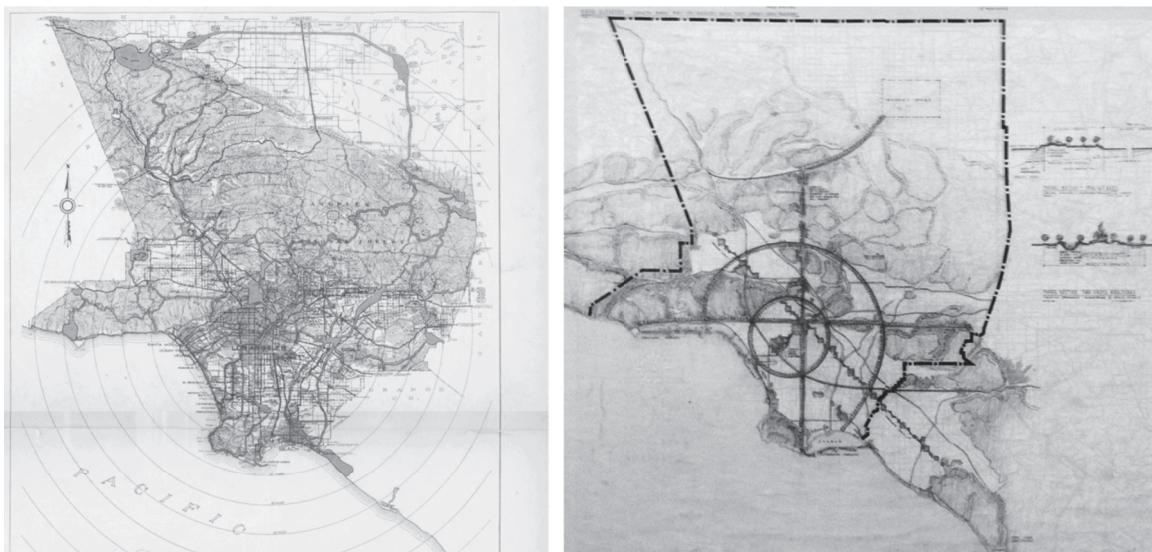


[fig9\_Lloyd Wright\_ Study for a Los Angeles Regional Urban Plan (1962)] Sections and Plans. LWA

<sup>459</sup> "Lloyd Wright Papers, 1920-1978," UCLA Library Special Collections, accessed November 10, 2017, [http://www.oac.cdlib.org/findaid/ark:/13030/tf0290036p/entire\\_text/](http://www.oac.cdlib.org/findaid/ark:/13030/tf0290036p/entire_text/).



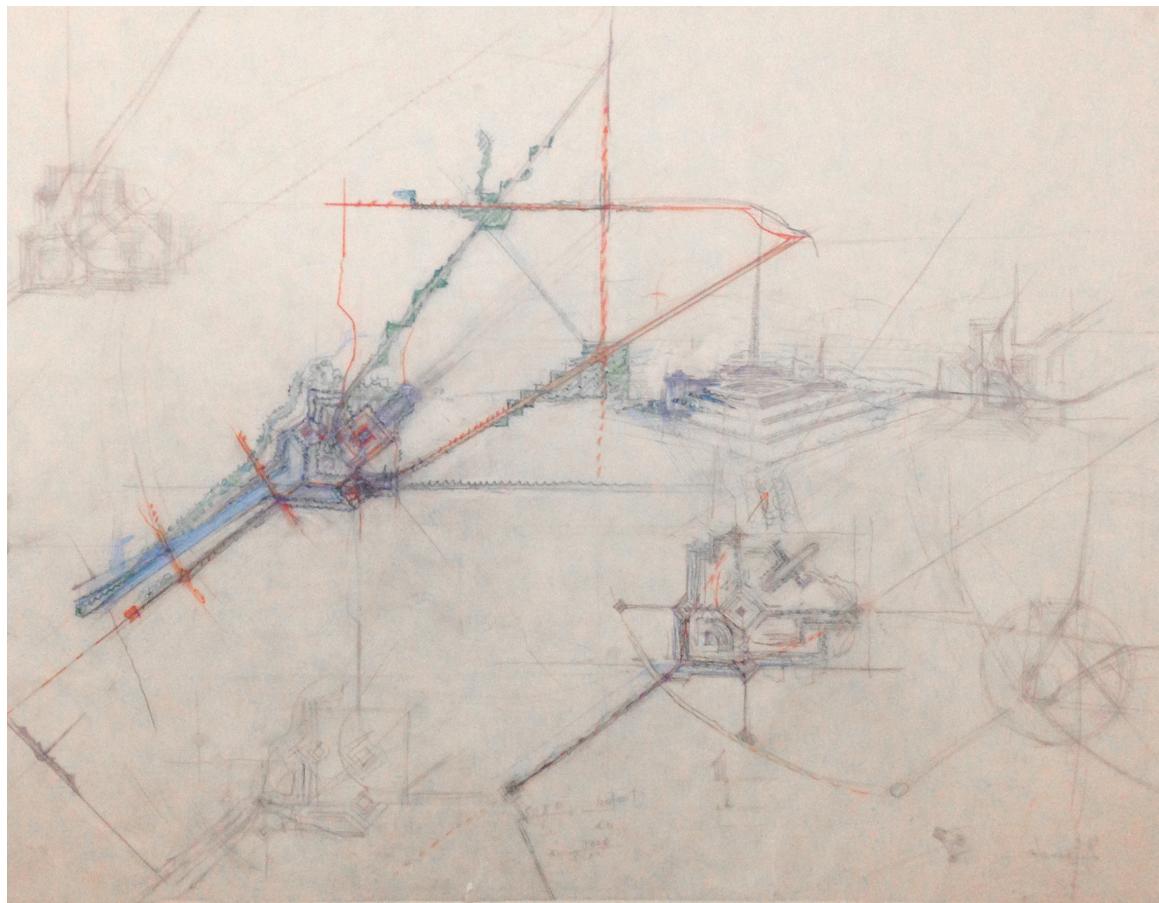
[fig10\_Lloyd Wright\_ Study for a Los Angeles Regional Urban Plan (1962)] Sections and Plans (detail). LWA



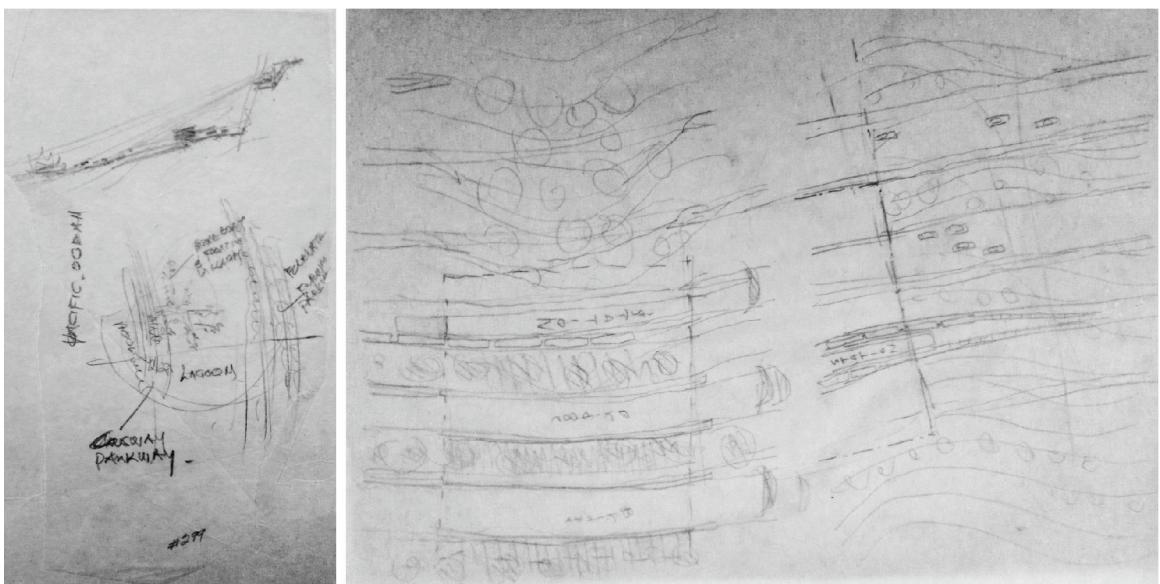
[fig11\_Olmsted studio and Lloyd Wright, Los Angeles Regional Plans] (left) 1930: (right) 1962. LWA



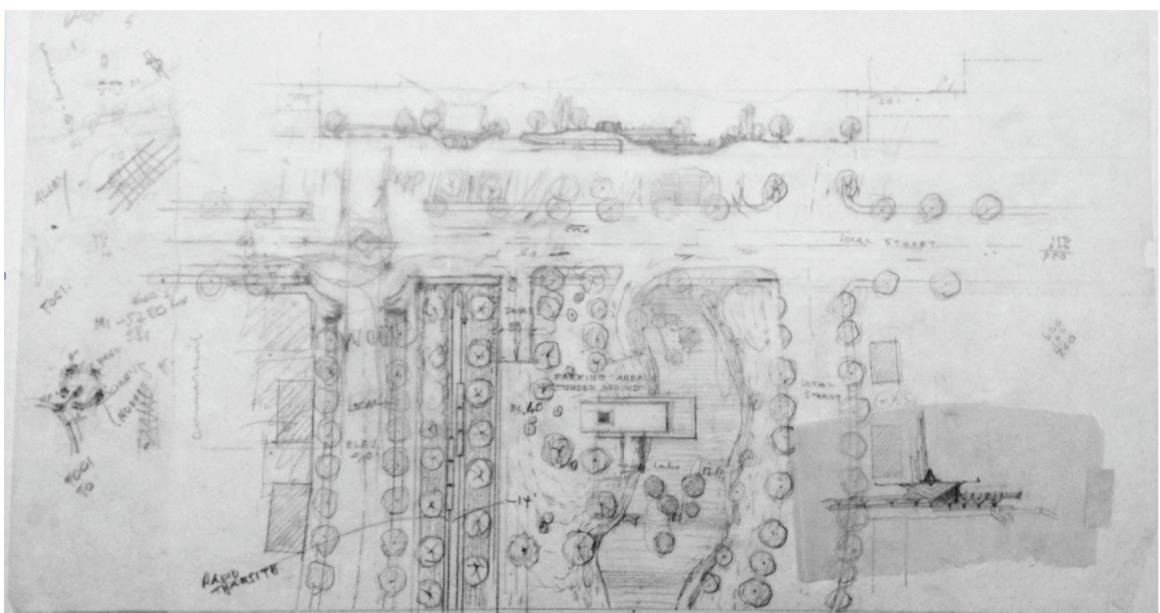
[fig12\_Lloyd Wright, *regional park system sketches* (1962)] LWA



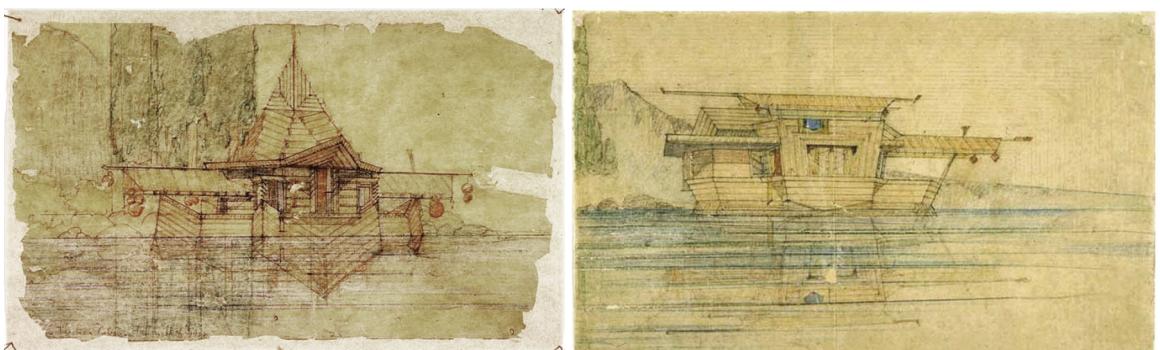
[fig13\_Lloyd Wright, *civic center sketches* (1962)] LWA



[fig14\_Lloyd Wright, *sketch fragments* (1962)] LWA



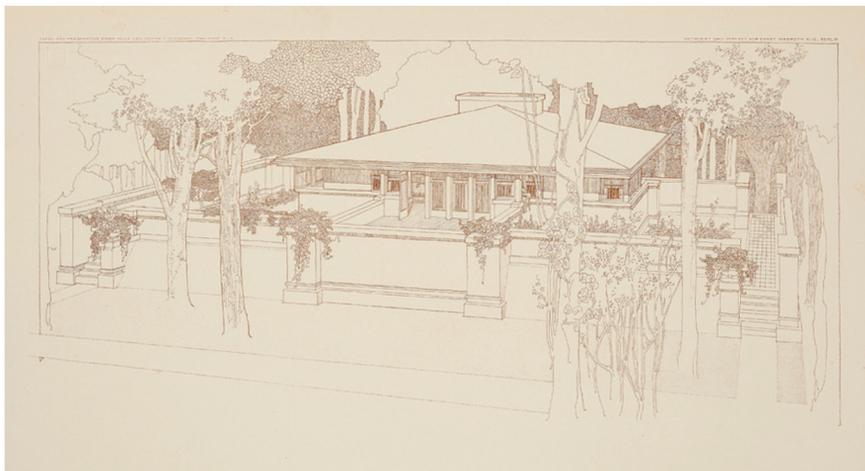
[fig15\_Lloyd Wright, *sketch homage* (1962/22)] w/ FLLW sketch fragment taped at bottom right. LWA



[fig16\_1922\_tahoe\_boats] FLLW



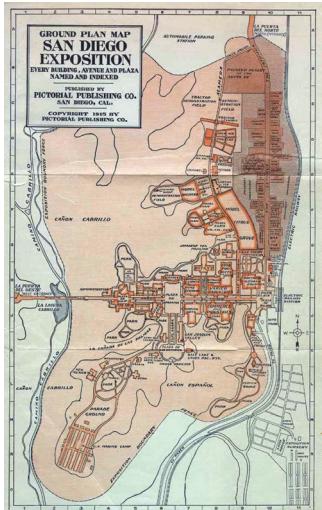
[fig17\_1922\_tahoe-panorama] Lloyd Wright, photographer. FLLW



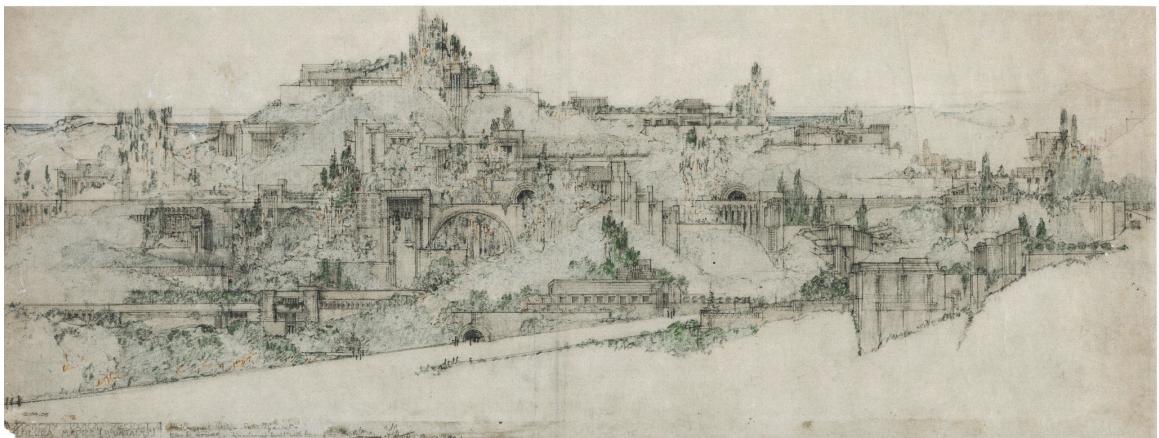
[fig18\_Frank Lloyd Wright/Lloyd Wright, Cheney House, Oak Park (1909)]  
Ausgeföhrte Bauten und Entwürfe von Frank Lloyd Wright, Wasmuth (1911) FLLW

| File No. 392-2 |        |                 | Employee F. Lloyd Wright, Jr. |      |                 | Rate +30 cents per hr. commencing 11 Apr. '10 |      |     |
|----------------|--------|-----------------|-------------------------------|------|-----------------|---|------|-----|
| (1910)         |        |                 | (1910)                        |      |                 |   |      |     |
| Date           | Item   | Hrs             | Date                          | Item | Hrs             | Date  | Item | Hrs |
| Apr-16         | Time   | 40              | Oct- 1                        | Time | 42              | 1 28  |      |     |
| 23             | "      | 39 <sup>1</sup> | 1 1 05                        | "    | 40 <sup>1</sup> | 1 2 23  |      |     |
| 30             | "      | 42 <sup>1</sup> | 1 2 05                        | 15   | 34              | 1 0 20  |      |     |
| May 3          | Cheque | 3 6 53          | 22                            | "    | 10 <sup>1</sup> | 1 2 19  |      |     |
|                |        | 3 6 53          | 29                            | "    | 148             | 4 55  |      |     |
| May 7          | Time   | 42 <sup>1</sup> | 1 2 58                        | 26   | Cheque          | 4 0 21  |      |     |
| 14             | "      | 39 <sup>1</sup> | 1 3 78                        |      |                 | 4 0 21  |      |     |
| 21             | "      | 41 <sup>1</sup> | 1 2 45                        |      |                 |   |      |     |
| 28             | "      | 41 <sup>1</sup> | 1 2 53                        |      |                 |   |      |     |
| 31             | "      | 74              | 2 18                          |      |                 |   |      |     |
| June 1         | Cheque | 5 1 52          |                               |      |                 |   |      |     |
| June 4         | Time   | 26              | 5 1 52                        |      |                 |   |      |     |
| 11             | "      | 42 <sup>1</sup> | 7 00                          |      |                 |   |      |     |
| 18             | "      | 33 <sup>1</sup> | 1 2 68                        |      |                 |   |      |     |
| 25             | "      | 40 <sup>1</sup> | 1 0 05                        |      |                 |   |      |     |
| 30             | "      | 39 <sup>1</sup> | 1 2 23                        |      |                 |   |      |     |
| July 1         | Cheque | 5 1 09          | 8 93                          |      |                 |   |      |     |
| July 2         | Time   | 11 <sup>1</sup> | 5 1 09                        |      |                 |   |      |     |
| 9              | "      | 33              | 5 1 08                        |      |                 |   |      |     |
| 16             | "      | 40 <sup>1</sup> | 9 90                          |      |                 |   |      |     |
| 23             | "      | 41 <sup>1</sup> | 1 2 15                        |      |                 |   |      |     |
| 30             | "      | 41 <sup>1</sup> | 1 2 45                        |      |                 |   |      |     |
| Aug. 1         | Cheque | 5 0 11          | 1 2 23                        |      |                 |   |      |     |
| Aug. 6         | Time   | 40 <sup>1</sup> | 5 0 11                        |      |                 |   |      |     |
| 13             | "      | 41              | 1 2 15                        |      |                 |   |      |     |
| 20             | "      | 41              | 1 2 30                        |      |                 |   |      |     |
| 27             | "      | 41              | 1 2 30                        |      |                 |   |      |     |
| 31             | "      | 21 <sup>1</sup> | 9 53                          |      |                 |   |      |     |
| Sept. 1        | Cheque | 5 5 53          |                               |      |                 |   |      |     |
|                |        | 5 5 58          |                               |      |                 |   |      |     |
| Sept. 5        | Time   | 18 <sup>1</sup> | 5 5 58                        |      |                 |   |      |     |
| 10             | "      | 12 <sup>1</sup> | 5 5 55                        |      |                 |   |      |     |
| 17             | "      | 42 <sup>1</sup> | 1 0 13                        |      |                 |   |      |     |
| 24             | "      | 42 <sup>1</sup> | 1 2 68                        |      |                 |   |      |     |
| 31             | "      | 36 <sup>1</sup> | 1 2 38                        |      |                 |   |      |     |
| Oct. 1         | Cheque | 5 1 09          | 1 0 95                        |      |                 |   |      |     |
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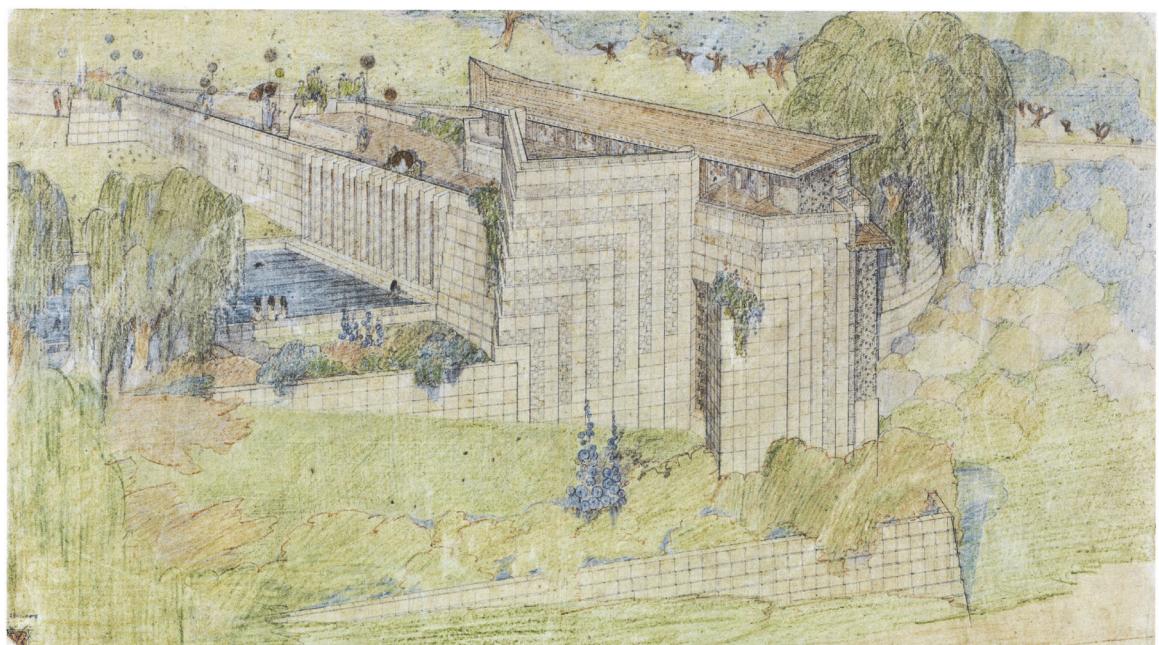
[fig19\_Lloyd Wright, Olmsted studio timesheet (1910)] FLO



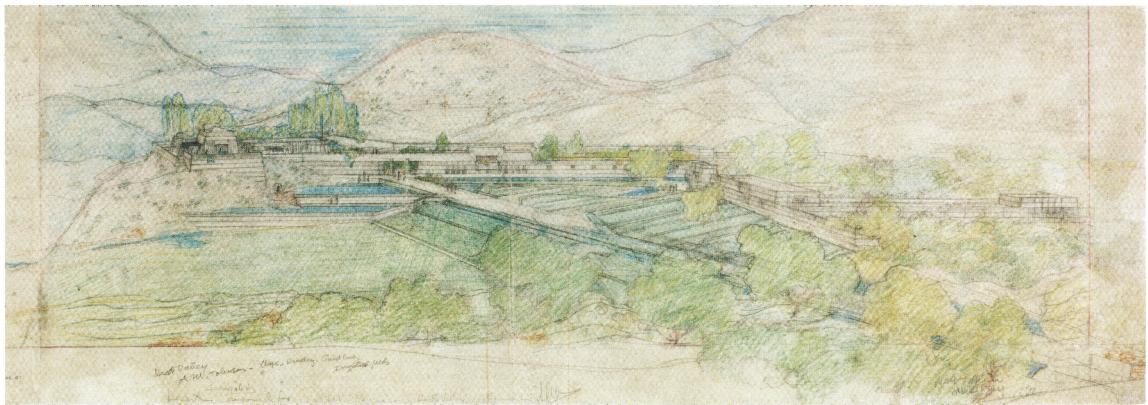
[fig20\_Lloyd Wright, et alia, *Panama Exposition, San Diego (1915-17)*] LWA



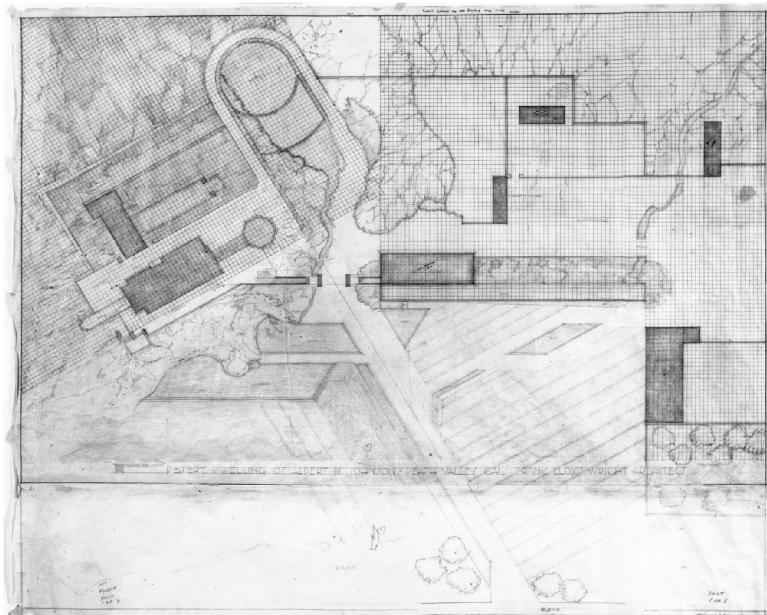
[fig21\_Frank Lloyd Wright, Doheny Ranch, 1921] FLLW 2104.005



[fig22\_Frank Lloyd Wright, *Little Dipper* (1923)] FLLW 2301.008



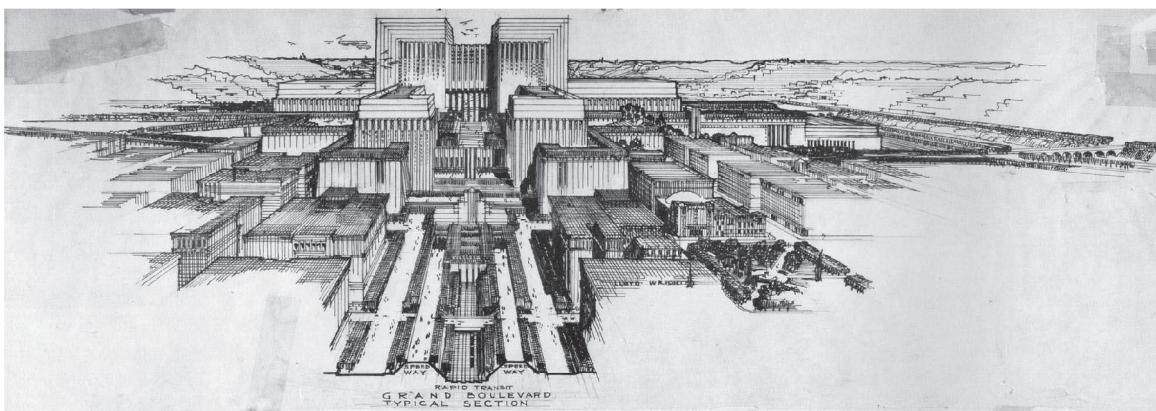
[fig23\_Frank Lloyd Wright, *A.M. Johnson, view* (1923)] FLLW 2306.033



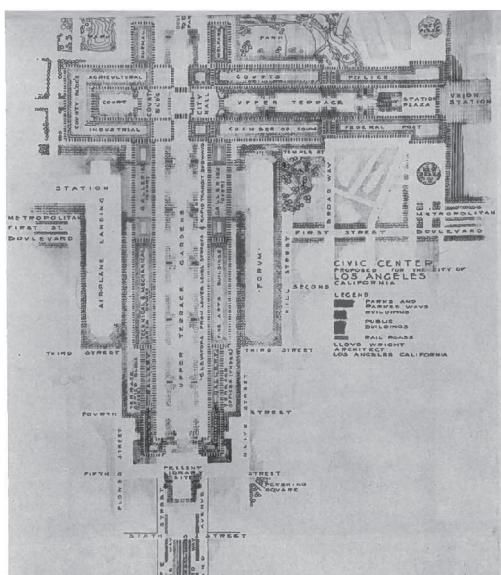
[fig24\_Frank Lloyd Wright, *A.M. Johnson, reflexx plan* (1923)] FLLW 2306.014



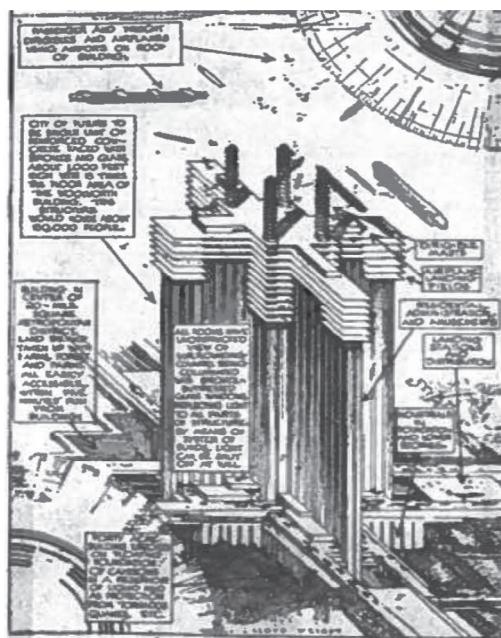
[fig25\_Frank Lloyd Wright, *A.M. Johnson, model* (1923)] CCA



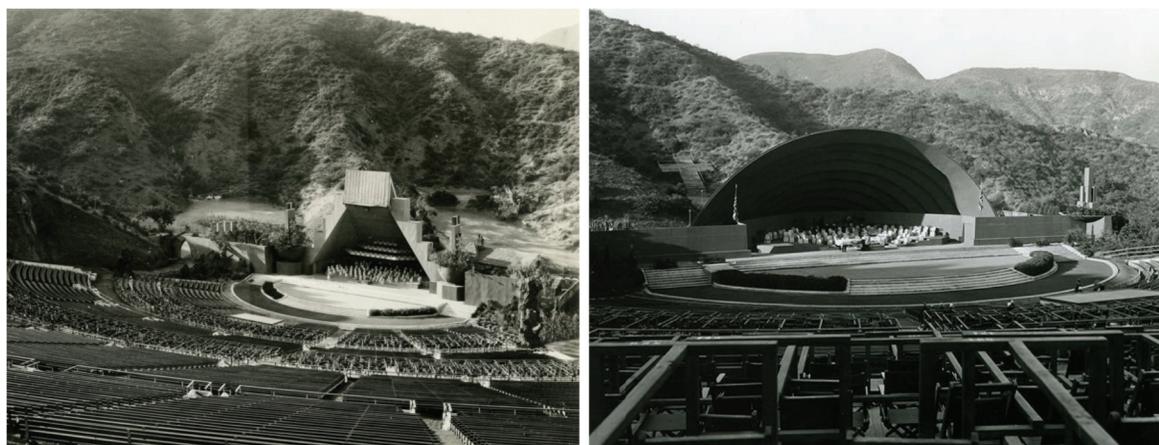
[fig26\_Lloyd Wright, *Civic Center, view (1925)*] LWA



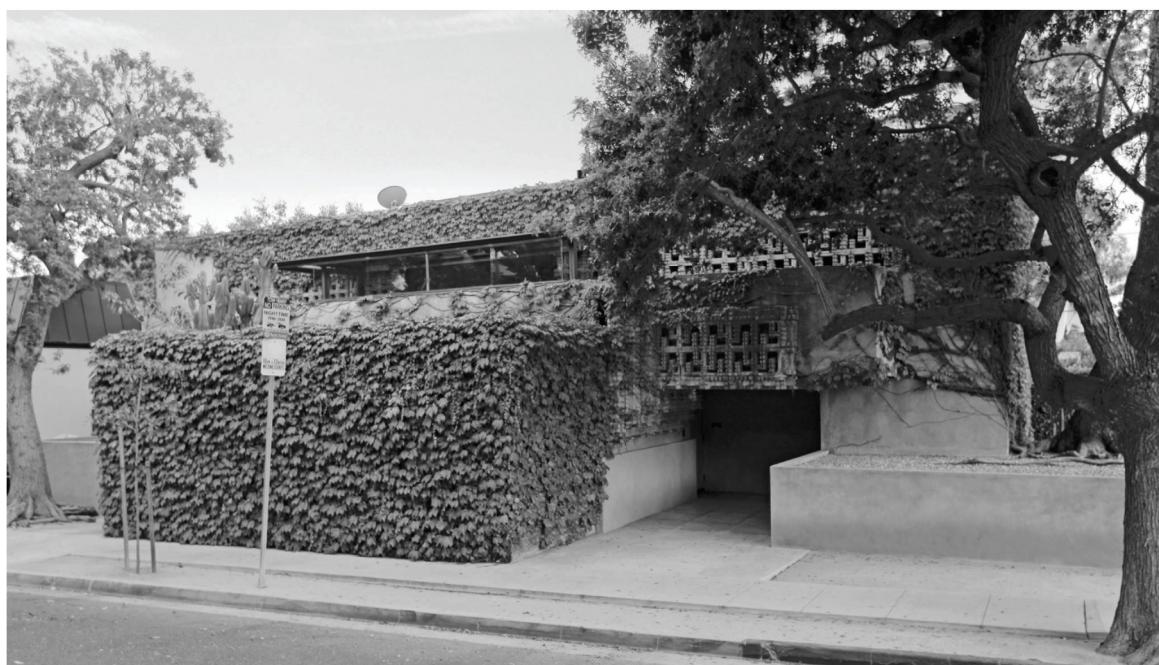
[fig27\_Lloyd Wright, *Civic Center, plan (1925)*] LWA



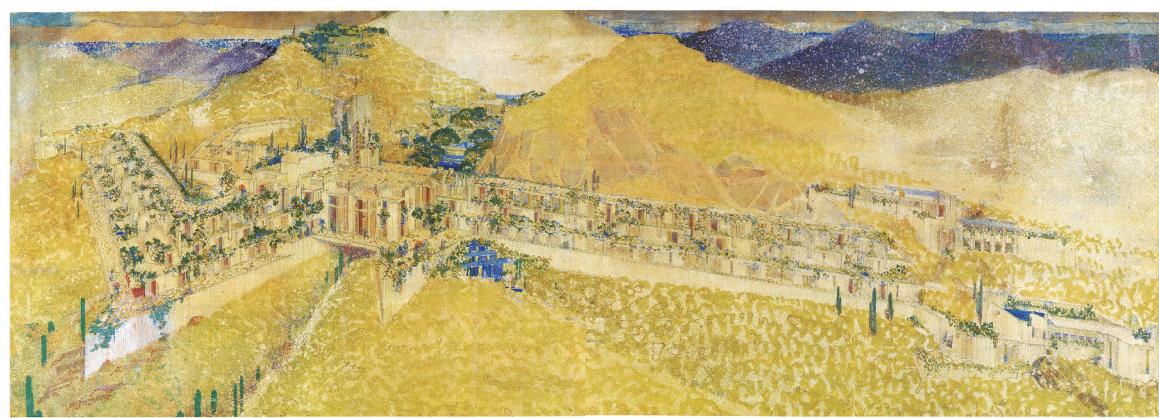
[fig28\_Lloyd Wright, *City of the Future (1925)*] LWA



[fig29\_Lloyd Wright, *Hollywood Bowl* (1927-28)] The first two iterations of the famed public venue. LWA



[fig30\_Lloyd Wright, *home and studio* (1927)] Image: the author



[fig31\_Frank/Lloyd Wright, *San Marcos In-the-Desert. night view* (1927-29)] FLLW 2704.198

### 1963 Lewis's Corridors

The year after Lloyd Wright designed his regional park system, Philip Lewis introduced the idea of ‘environmental corridors,’ helping to put ecological planning on a solid footing, and prompting land conservation advocate Charles Little to later refer to Lewis as ‘consistently the most inventive (and occasionally controversial) figure in regional landscape planning theory in the country.’<sup>460</sup> Lewis identified Wisconsin’s ecological corridors on the basis of a statewide inventory of an array of resources – including fish and wildlife, unique landscapes, water and wetlands, recreation and culture – and locating them on a map of the state. The resulting plan showed a territorial figure articulated by these environmental corridors – revealing the underlying ecological armature of the region.<sup>461</sup> [fig32\_lewis\_corridors] We have noted that his colleague Ian McHarg cited this plan the following year, and expressed his priority in the matter, writing in *An Ecological Method for Landscape Architecture* (1967) of ‘the first objective is the inventory of unique or scarce phenomena, the technique for which Philip Lewis is renowned.’<sup>462</sup>

Lewis’s inventory methods were initially undertaken with conventional means – using physical and social surveys, sketches and maps – but in the early 1960s Lewis had already taken an interest in computational methods. In the course of my research I interviewed Carl Steinitz about Kevin Lynch – Steinitz was Lynch’s first doctoral student at MIT following the publication of *Image of the City* (1961), and having concluded his PhD Lynch had arranged for Steinitz to be hired as a professor at Harvard. It happens that the very first teaching studio Steinitz taught his first year at Harvard he invited both Lewis and McHarg as jurors for the student’s final presentations. Steinitz describes that he had undertaken to teach ‘the very first’ computer-assisted design studio, and that the reactions of these two men couldn’t have been more different.

According to Steinitz, McHarg was both ‘furious and dismissive’ – stating, and here Steinitz emphasized that is a precise quote: “Computers will never play a role in landscape architecture.”<sup>463</sup> Lewis, on the other hand, was calmly encouraging and appreciative. ‘Now,’ Steinitz said, ‘that is not the interesting story. That is the prelude.’

*The interesting story is that a month later I got a call from Phil, saying would come out to the University of Wisconsin [Madison] to work with Phil...on a study of the interstate highway linking Milwaukee with Green Bay. And so I went out to Wisconsin – this is in 1966...maybe the early part of 67 – and...with a little bit of telephone instruction [we] set up a database on this highway corridor, and...we put a group of people together. And we made nine analysis maps that indicated principle factors for the*

<sup>460</sup> Charles E. Little, *Greenways for America* (JHU Press, 1995), 22.

<sup>461</sup> Philip H. Lewis, “Quality Corridors for Wisconsin,” *Landscape Architecture*, January 1964.

<sup>462</sup> Ian L. McHarg, “An Ecological Method for Landscape Architecture,” *Landscape Architecture*, January 1967, 105.

<sup>463</sup> Carl Steinitz, *Interview with Carl Steinitz*, interview by Matthew Skjonsberg, August 8, 2017, n. 13:05.

*site, and where the highway should or shouldn't go. As I recall four or five of them were conservation oriented and four or five...were development oriented. And then we combined those maps, all digitally, and we could say, 'This is the best corridor – and these are the problems you are going to have in this part of the corridor because [there are] conflicts between conservation and development in this very sensitive area.' And that actually was the basis of a negotiation that in the real world about a year later decided where the highway should go...That was very interesting.<sup>464</sup>*

Lewis continued to develop more advanced hybrid methods involving both analog and computational methods in his teaching at Harvard, the University of Illinois, and the University of Wisconsin – where he served as the Jens Jensen Professor of Landscape Architecture until his official retirement in 1995. One of his early students was Jack Dangermond, who went on to found Environmental Systems Research Institute (ESRI) – a privately held Geographic Information Systems software company with a value estimated at over 4 billion US dollars as of November 2017<sup>465</sup> – who honored Lewis with the first ESRI Lifetime Achievement Award in 2000. I was working closely with Lewis at that time, when he was teaching at Taliesin, and I can attest that we would consistently oscillate iteratively between sketching, computing, and physical modeling in developing regional design proposals.

In the context of this chronology, it is interesting to note that it was from this time period that architects began to pick up on the ‘environmental corridor’ concept in their own work, but making an inverse reading – what Lewis suggests is a *figure*, architects interpret as *ground*. The Situationist Dutch architect/artist Constant Nieuwenhuys (1920-2005) was among the earliest of these, and his project for New Babylon (1964-69) – initially known as *Dériville*, from ‘ville dérivée’ -literally, ‘drift city’ – adopts the territorial figure of such environmental corridors, but fills them with architecture. [*fig33\_constant*] The same is the case for Cedric Price (1934-2003), whose Potteries Thinkbelt project (1964-66) applies such a territorial figure to the purpose of a decentralized educational institution in Britain’s first industrialized – and by then de-industrialized – region, which we have addressed at some length. [*fig34\_price*] Paul Rudolph (1918-1997) adopts the figure at a territorial scale for Lower Manhattan with hubris, evidently unaware – or unconcerned – with the battle so recently waged there by Jane Jacobs and her cohort. [*fig35\_rudolph*]

This inverse reading by architects persists into the present. A vivid example is found in Aldo Rossi’s *The Architecture of the City* (1982), the English translation of which was prepared by Rossi and Peter Eisenman. Here we find the plan of Chicago’s park systems – but misidentified as ‘industrial and railroad land.’ [*fig36\_rossi\_chicago*] Lest we think this is by mistake – a fault of interpretation attributable to the green areas printed in black, as we have discussed in the previous chapter – Rossi

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<sup>464</sup> Steinitz, n. 14:46-15:23.

<sup>465</sup> “Jack & Laura Dangermond,” Forbes, accessed November 10, 2017, <https://www.forbes.com/profile/jack-laura-dangermond/>.

and Eisenman then show eminent *civic designer* Werner Hegemann's 1929 plan of Berlin, [fig37\_rossi\_berlin] but where Hegemann's plan is titled 'Freiflächenschema' (open space plan) and the areas in black are designated as 'Allegemeine Freiflächen' (general open spaces), Rossi and Eisenman rather misleadingly call 'unbuilt areas' – as though it were the place they'd like to build next. Architectural myopia is certainly related to the urban myopia we've identified in various guises throughout the dissertation. Coming from this angle, another light is shone on Peter Eisenman's response when I asked him about his own PhD thesis of 1964 – in which he analyzed, *sans context* (Jensen's garden and Olmsted's Riverside) what he described as Wright's 'multi-axial', 'linear spatial' designs for the Coonley House – his emphatic response was:

*I hate Wright. I've always hated Wright. I only studied him to figure out why I hated him so much...I hate nature. If you love nature so much you should be a damned landscape architect.<sup>466</sup>*

We ought not to be surprised, then, that architects have not generally been attuned to ecological interests, nor that the urban design profession – so strongly influenced by Eisenman's own Institute for Architecture and Urban Studies, financed by MIT as a New York outpost from 1967-84 – has been so unresponsive, and even antagonistic to the social and ecological agenda so forthrightly championed by their interdisciplinary *civic design* predecessors.

Even so, the architects might not be altogether on the wrong track. In the first chapter one of our polemicists praised Roadtown – the 1910 meta-structure proposed by Edgar Chambliss – because he thought it “constitute[s] a recognized application of the laws of centripetal and centrifugal social force (the centralization and decentralization of population)...”<sup>467</sup> Architects are still exploring megastructure typologies, and they may find some systemic mode of linear superstructure development that is a success. Such a scenario could conceivably work with the kind of natural cultural *dual network* promoted by ecologists like Philip Lewis – again, the intersections of the two systems will be points of particular interest. But I am prompted to think of physicist Leonard Susskind's response when asked if he thought there are universal laws applicable everywhere, and he says,

*We're telling them 'No, it is contingent on the environment - it is different over there, and different over there.' Also regarding Einstein's mistaken certainty regarding 'the myth of uniqueness' – constants of nature are essentially contextual, it is a Rube Goldberg machine...<sup>468</sup>*

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<sup>466</sup> This exchange between the author and Peter Eisenman was documented at the Berlage Institute in Rotterdam, and can be seen here "Genius Loci and the Zeitgeist: Two Ideologies" [http://www.theberlage.nl/events/details/2010\\_03\\_23\\_genius\\_loci\\_and\\_the\\_zeitgeist\\_two\\_ideologies](http://www.theberlage.nl/events/details/2010_03_23_genius_loci_and_the_zeitgeist_two_ideologies). Accessed July 6, 2017.

<sup>467</sup> G.P. Hersey, "EINSTEIN ADMITS UNALTERABLE CAN BE ALTERED One Holds Views of Both Dr. Jackson and Mr. Russell Are Borne Out," *The New York Times*, August 10, 1930, sec. Weekend.

<sup>468</sup> Leonard Susskind, "Exploring the Landscape - a Talk with Leonard Susskind," May 15, 2004, n. 7:20, [https://www.edge.org/conversation/leonard\\_susskind-the-landscape](https://www.edge.org/conversation/leonard_susskind-the-landscape).

We know from history of the successful and unsuccessful examples of universal architectural solutions – this was the polemic played out between Wendingen Journal and De Stijl, between Organic architecture and the International Style. Possibly future architectural form will also be more like an *ad hoc* Rube Goldberg machine – minutely responsive to context – than a sleek Swiss watch. More like an exploration of micro-narratives than adherence to a grand narrative. Susskind's talk was titled 'Exploring the Landscape' – using the term *landscape* as physicists do, to mean the entire set of scientific principles known to be reasonably self-consistent. In the talk he concludes by emphasizing that if we say the universe is elegant, it can obscure what we might learn by paying attention to the parts that are not elegant – 'and those are probably the interesting parts.'<sup>469</sup>

Ecological planners meanwhile have effectively carried a great deal of responsibility, and their regional 'greenways' currently receive funding from various municipal, state, regional and national initiatives and governance institutions – as well as, increasingly, from strategic corporate and public/private partnerships. These 'greenways' are generally continuous ecological corridors, but they often end at the city edge, and would require the creation – or in many cities, the rediscovery and revitalization – of *park systems* to be complete. So I believe the new era of civic design, whether it is called by that name or another, will come about through a renewed intimacy between design and planning disciplines.

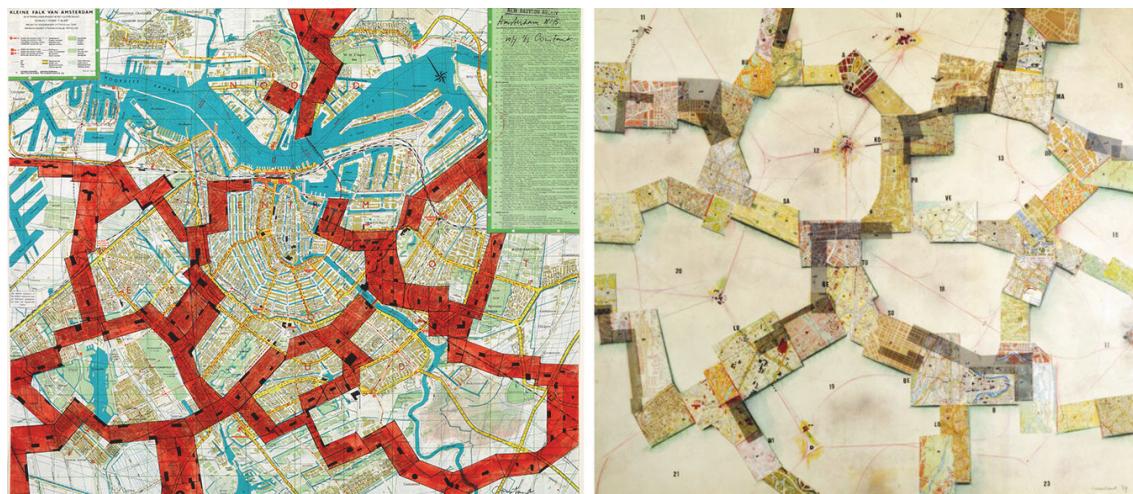
Here is the scope for immediate action: taken together, regional *ecological corridors* and rural urban *park systems* collectively yield a 'territorial figure', an 'image of the city' informing imagination and orientation, and creating an armature for ecological, spatial and even social stability. *Park systems* are predicated on civic participation, and by their nature are long-term, intergenerational endeavors – creating living habitats while allowing for intergenerational cycles oscillating between urban growth and contraction. My argument is therefore not to replace *urban design* with *civic design*, but rather to position *civic design*'s environmental and ecumenical priorities in counterpoint to *urban design*'s economic and commercial priorities. It may be we'll find that by reclaiming, for example, 20% of the city's footprint for *civic design*, we can stitch together *park systems* enabling 'soft' ecological corridors and 'active' social mobility circuits between cities and their regional contexts. It is worth pointing out that 80% of this area already exists in most cities – along rivers and waterfronts – but the areas are often isolated in fragments. Strategically addressing the remaining 20% of the overall 20%, establishing spatial continuity – and thereby ecological continuity. There is necessarily a loose fit between development narratives and the form of the city. *Civic design* is a discipline that provides an *ecological, economical* and *ecumenical* precedent of how to ensure that 'fit' is loose in a good way.

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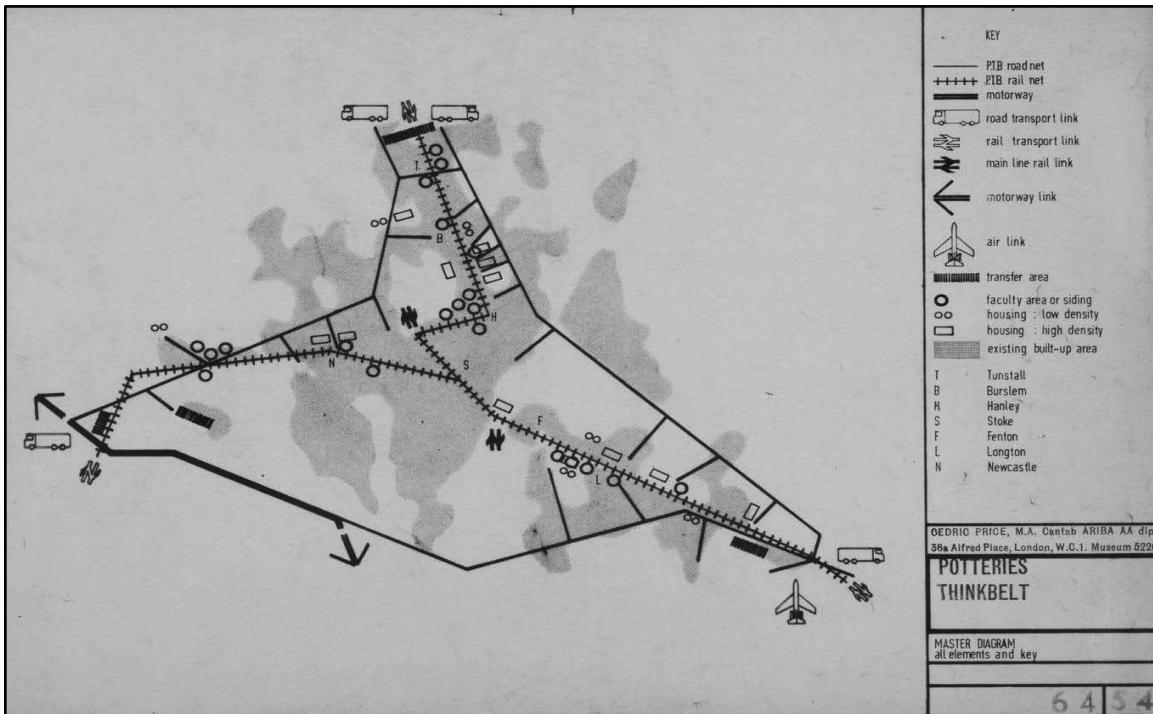
<sup>469</sup> Susskind, "Exploring the Landscape - a Talk with Leonard Susskind."



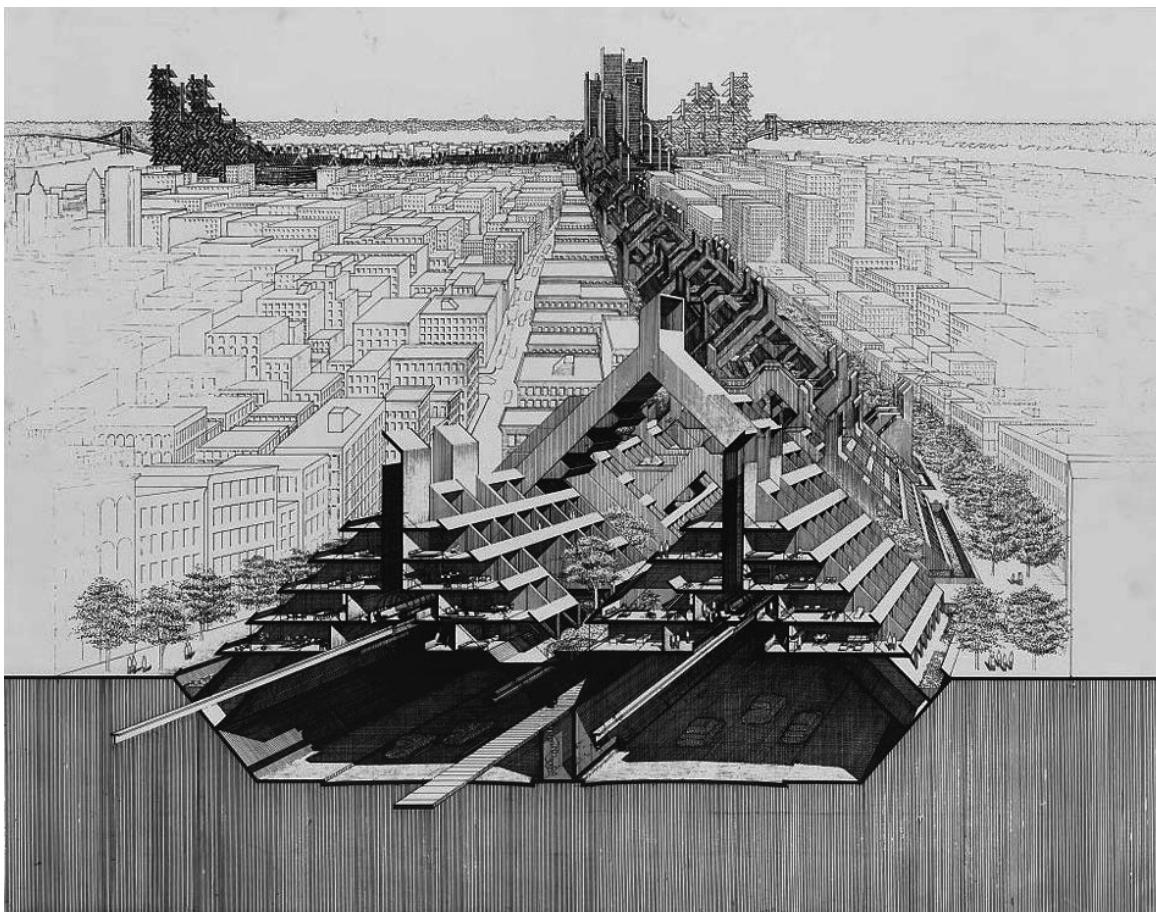
[fig32\_Philip H. Lewis Jr., *Ecological corridors are shown in green, watersheds in grey* (1963)] Image: Phil Lewis



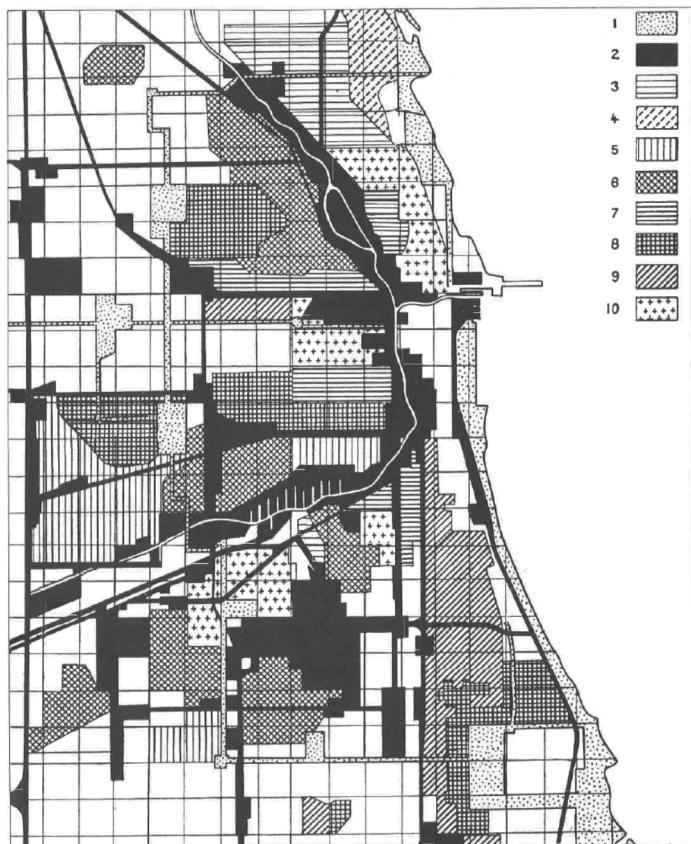
[fig33\_Constant Nieuwenhuys, *New Babylon - Amsterdam* (1964-69)] Images: Foundation Constant



[fig34\_Cedric Price, *Potteries Thinkbelt* (1964-66)] CCA



[fig35\_Paul Rudolph, *Lower Manhattan* (1967)] LOC



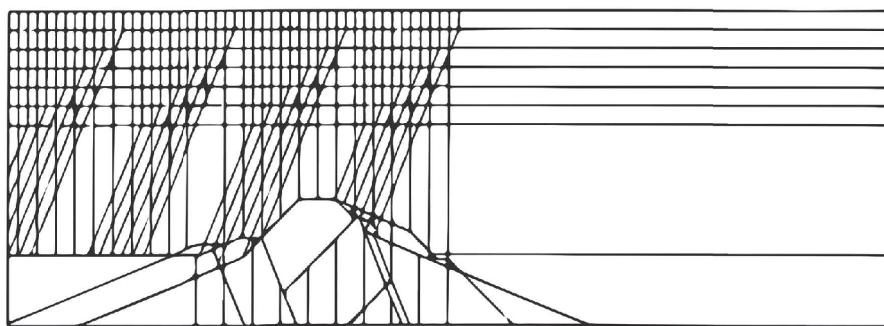
[fig36\_Aldo Rossi/Peter Eisenman, *Plan dividing Chicago by use and ethnic zones* (1982)] Areas in black are largely park systems, but are labeled by Rossi and Eisenman ‘industrial and railroad land.’ Image: MIT Press



[fig37\_ Werner Hegemann, in Aldo Rossi/Peter Eisenman, *Berlin, scheme of the unbuilt areas within the city limits and the surrounding zone*, 1929. In black, general unbuilt areas. (1982)] Image: MIT Press



*THE CHARTER  
OF ELEMENTS*



*v.III*



### 3.1 THE CHARTER OF ELEMENTS: Climate Change and Democracy

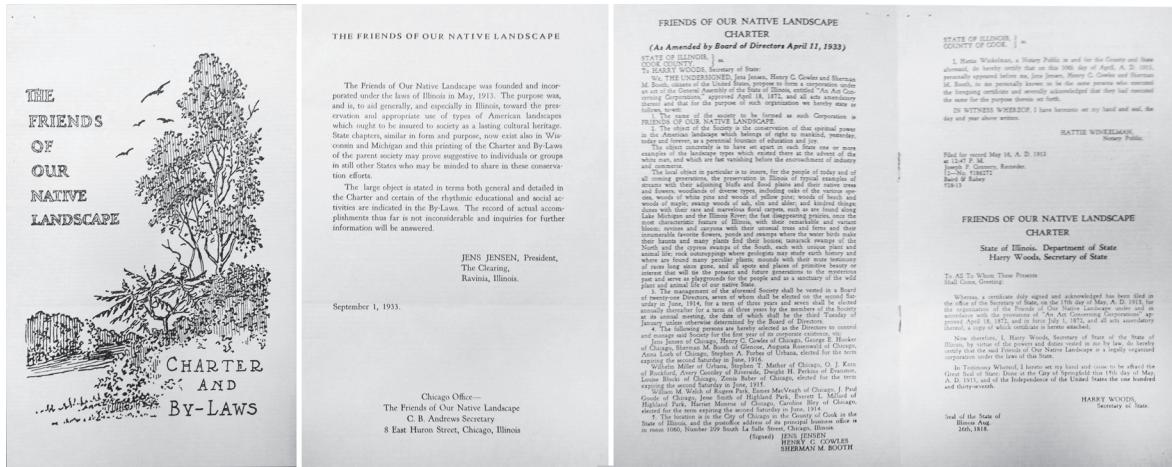
Orienting the conclusion towards policy, considering narrative as regards civic design and forms of administrative organization for creating park systems that are uniquely well-suited to give form to the initiative to establish 'The Charter of Elements' – ensuring the well-being of all by extending the rights of personhood to water, soil, and air.

*Climate change is the worst kind of problem for the human brain to cope with — something that is too slow moving to give us the rush of adrenaline that signals 'emergency', something that is so diffuse in its causes that it requires collective action at a scale that humanity has never managed. We all put it out of our minds most of the time. We all live life as normally as we can under the shadow of an increasingly uncertain 'long run'. - Gabriel Metcalf*

#### i. Nature Patterns

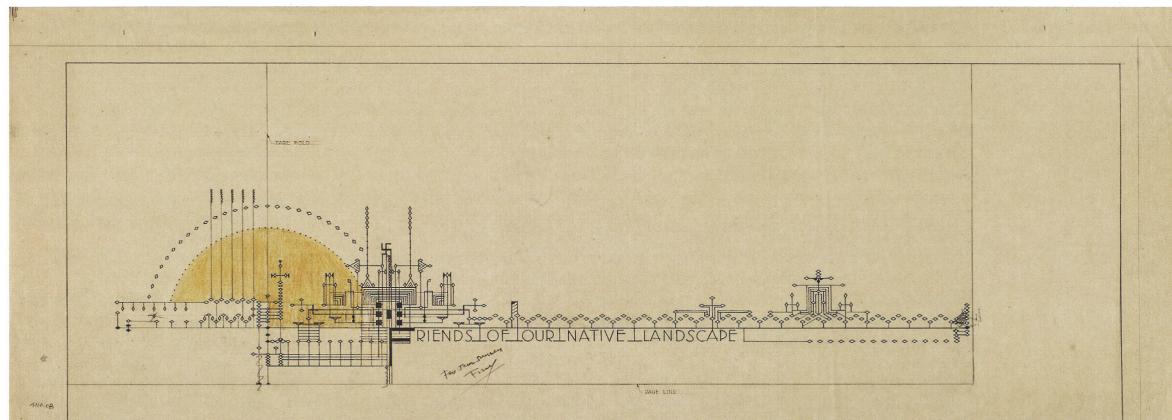
Architecture is a discipline that implicitly speculates, assumes and even structures a certain kind of reality in the future. Although architects are not generally considered political activists, when they yield to unscrupulous economic interests as opposed to standing for genuinely sustainable objectives they become, however unwittingly, the *technical enablers* of a biased and unjust environment. Whatever commonalities there may be between the various *charters* encountered throughout this research – from the *Great Charter* of 1215, to the *Chartist Movement* and the *People's Charter* of 1836, on to Le Corbusier's *Charter of Athens* in 1944 – perhaps the greatest apparent difference between them and this proposed *Charter of Elements* derives from the very different environmental inclinations that exist today. So the purpose of writing this new *charter* is to focus on an issue that wasn't on the minds of King John or the Chartists, Le Corbusier or Gropius. The issue is climate.

But as we've learned, climate was an issue on the minds of the civic creators of the *park system* in Chicago as early as 1849. And later of Jens Jensen and the others who worked with him writing and implementing the conservation-minded *Charter of The Friends of Our Native Landscape* in 1913. [fig1\_friends\_charter] The document shown in the figure is a 20<sup>th</sup> anniversary reissue of the Charter from 1933 – it was among the papers I found in Lloyd Wright's UCLA archives, in the box holding his correspondence with Jensen. *The Charter of The Friends of Our Native Landscape* sets out the by-laws and formally registered the organization with the State of Illinois. We know that Jane Addams, like Lloyd Wright, was among the active participants in Jensen's organization. Among other co-signatories to this 1913 *Charter of Friends* is Avery Coonley, who with his wife Queene Ferry – both heirs to industrial fortunes and repeat clients of Jensen and Wright – established a school John Dewey praised in his *Schools of Tomorrow*, featuring photographs of students within the setting provided by Wright's architecture and Jensen's garden in Olmsted's Riverside community – a school that is still thriving.



[fig1\_Jens Jensen, et alia, *The Charter of The Friends of Our Native Landscape (1913/1933)*] LWA

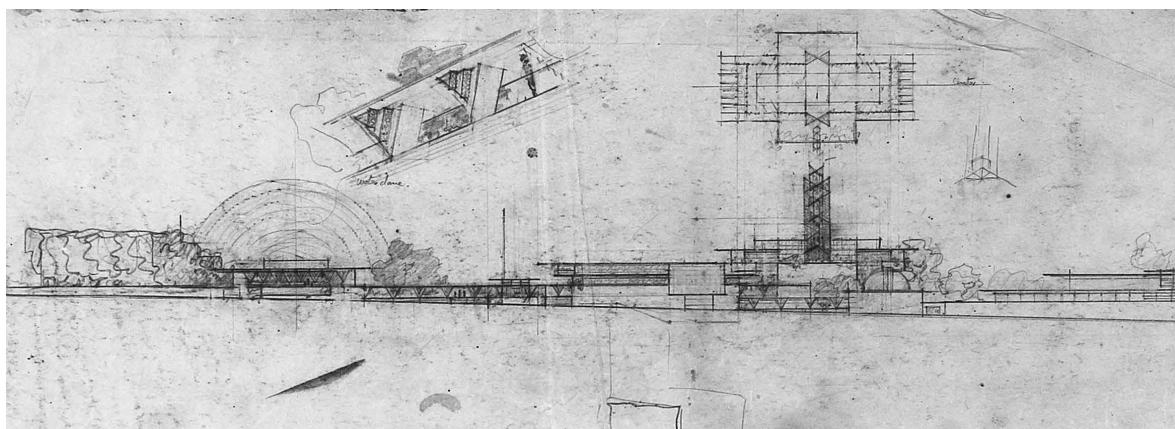
Also here is Sherman Booth, another repeat client of Jensen and Wright's, whose community estate was created by these two in exemplary *civic design* fashion – integrating public transit, nature conservation, and civic amenities – and was only omitted from the chronology for relative brevity, and with regret. A number of the other co-signatories were also wealthy industrialists – Stephen Forbes, Everett Millard (another of Wright's clients) and Augusta Rosenwald, the owner of Sears Company. Rosenwald was also a famous philanthropist and founder of the *Rosenwald Schools for Negro Children*, building over five thousand schools in the segregated south between 1915 and 1930, for which he also commissioned Wright. The *civic designers* we've encountered are also here – both Dwight Perkins and George Hooker were early *Charter of Friends* co-signatories, and Frank Lloyd Wright's role included the creation of graphic designs for the organization's letterhead, stationary and posters between 1913 and 1941. [fig2\_wright\_friends]



[fig2\_Frank Lloyd Wright, *Friends of our Native Landscape (1941)*] FLLW 4110.008

This figure provides a subtle point of entry for our concluding passages. The drawing shown is the final version, made by Wright at that difficult moment when we know several of his apprentices were in prison as conscientious objectors, and Taliesin was quiet. We will return to this drawing and its creation in a moment. First we must take note of the annotations Wright made on the very first version of the graphic, made in 1914, the year after *The Charter of Friends* was created. On this preliminary sketch Wright wrote a note to Jensen that poetically explains the symbolism of his graphic – depicting an abstracted ‘device’ involving the prairie topography, the moon, a flowering tree, a group of dried weeds with seedpods, and an Indian swastika. First ‘the prairie’ is identified as the one of the ‘elemental conditions of nature’ that ‘man cannot comprehend,’ which Wright enthusiastically qualifies by adding, “The prairie – because Jensen and I love it!” He goes on to describe dried weeds with seedpods as ‘nature’s most effective *readymade* decoration’ – an early use of the term *readymade*, actually referring to Rosenwald’s ‘Sears Readymade’ mail order houses – and he includes the ancient Indian symbol apparently in reference to Britain’s colonization of that country, and equating it with the colonization of Native American landscapes and the displacement of their peoples – ‘because we are taking over their land and trust.’ As we see, even a cursory assessment of the Jensen graphics demonstrates the complexity of Wright’s relationship with Jensen, and with the landscape. We come to see that the graphic is a figure representing a cosmology – his interpretation of the world they inhabited together, Jensen and he and the other *Friends of Our Native Landscape*.

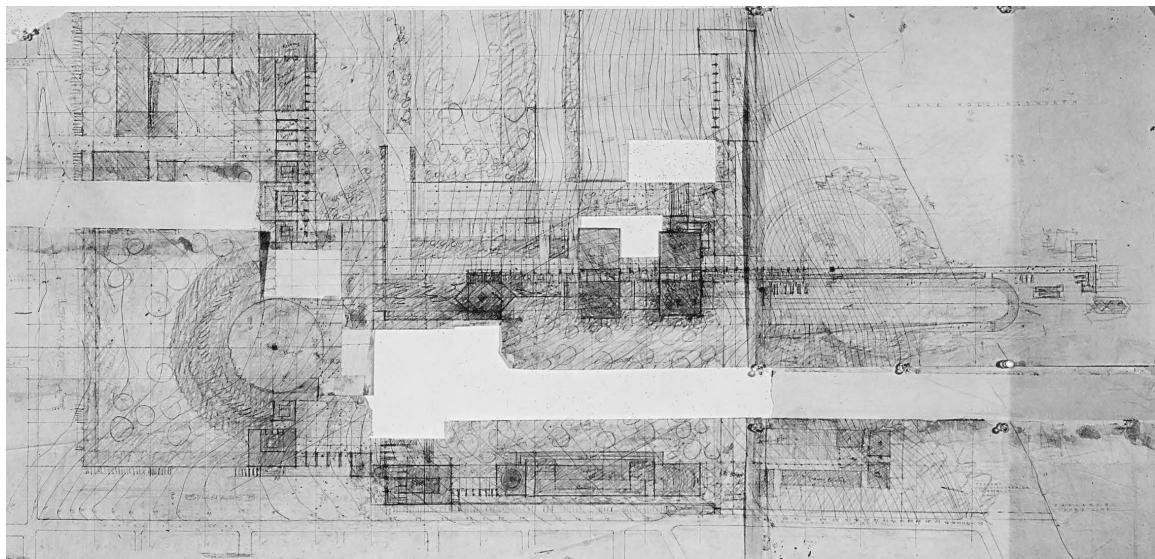
We can imagine Wright taking up the annotated sketch again in 1941, and reflecting on the time that had passed since he’d made it – Jensen had then died only five years earlier, the *Friends* organization had officially been disbanded, and its *Charter* technically voided. What prompted Wright to make this new drawing? I had thought about this question for a long time, and while preparing my catalog essay for the exhibition at MoMA (an elaborated, more exploratory version of which appears here as 2.2.3\_ *Do It Yourself*) I was spending time with the Florida Southern College project (1938), which as you’ll recall was designed in such a way that the students could participate in building the campus themselves.



[fig3\_Frank Lloyd Wright, *Florida Southern College, preliminary elevation (1938)*] FLLW 3805.008

In the archive among the drawings for this project I found one that made me pause, then shudder – I recognized the *Friends of Our Native Landscape* graphic from 1941 in the south elevation of the school. [fig3\_wright\_florida] The elevation is not dated, but the commission was received in 1938, and elevation is obviously an early study. It was remarkable – comparing the drawings I was gratified to see that I hadn't been mistaken, and they were even approximately the same scale, suggesting that the graphic was elaborated on the basis of a trace made of the drawing. At left is the stand of cedar trees forming the exedra flanking the waterdome – an innovative water feature that was successfully built, and that you can visit today. In the graphic this is transformed into a yellow sun. And at far right is the symmetrical elevation of the chapel, the first of the buildings to have been built at the school – rendered here with a diagrammatic *abstraction* of its essential form.

Interestingly, among the early plan drawings most closely corresponding with this elevation is one in which Wright is exploring a version of the overall plan – it must be one of the earliest drawings, because it is the only one where we can see that the initial basis Wright had taken for the campus layout was ‘the trope’. [fig4\_wright\_florida\_trope] Here we can see a plan similar in form to Jefferson’s *University of Virginia*, and we know Wright was thinking of that project in relation to Florida because he attributed his idea for the covered walkways there to Jefferson’s covered arcades flanking the courtyard at the center of the figure. And at far right a cluster of houseboats is clustered at the terminus of the pier, reminding us of son Lloyd and their work together. We also see that the drawing has been cut into pieces, apparently in an effort to break the symmetry, and then reintroduce it more subtly – as he does with the two rectangles pasted with somewhat less formal symmetry near the center of the image.



[fig4\_ Frank Lloyd Wright, *Florida Southern College, preliminary plan (1938)*] FLLW 3805.007

We know that for Wright geometry held meaning beyond formal considerations, and in 1939 Wright had addressed the Royal Institute of British Architects in London, where he delivered a series of war time lectures prefaced with the presentation of 16mm color films of Taliesin and Taliesin West, his own campuses. Among his many statements in support of the abolition of war, and in support of pacifism, he said:

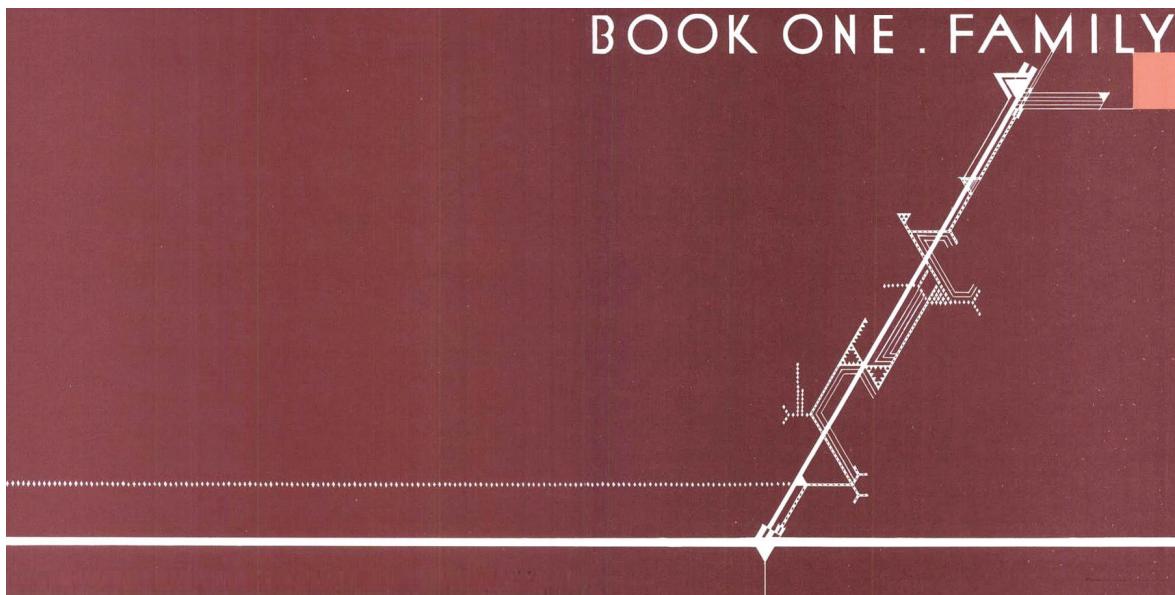
*Architecture is a necessary interpretation of such human life as we now know, if we ourselves are to live with individuality and beauty. The ‘classic’ of course made no such statement; the ‘classic’ ideal can allow nothing of the kind to transpire. The ‘classic’ was more a mask for life to wear than an expression of life itself. Then how much more so was pseudo-classic? So modern architecture rejects the major-axis and the minor-axis of classic architecture. It rejects all grandomania, every building that would stand in military fashion heels together, eyes front, something on the right hand and something on the left hand. Architecture already favors the reflex, the natural easy attitude, the occult symmetry of grace and rhythm affirming the ease, grace, and naturalness of natural life. Modern architecture – let us now say organic architecture – is a natural architecture. The architecture of nature, for nature.<sup>1</sup>*

So we can imagine – just as Taliesin was quiet in 1941 due to the wartime draft, so the Florida school was quiet – and little progress was being made on its construction. Wright is thinking of the war; his absent apprentices; his absent friend, and the Friends of Our Native Landscape; the school in Florida, the absent students and the stalled progress there. And he makes this drawing. Is it homage to his friend? Is it aspirational? Is he hoping that someday, when the war is over, students like those in Florida will take up friendship with their own native landscapes and possibly establish their own charter? Of course we cannot know with certainty.

But we know that this kind of narrative thinking informed Wright’s other graphic *abstractions* – or *nature patterns*, as he called such drawings. For example we know that when Wright designed in the studio, if he had apprentices sitting with him he would narrate the drawing as he made it, describing where the client would take breakfast in the sun, of dinner at sunset, or be warm on a cold day, etc. He famously narrated these storylines when designing the plan for *Fallingwater* (1936), as apprentice Edgar Tafel recalled, “Liliane and E.J. will have tea on the balcony...they’ll cross the bridge and walk into the woods...”<sup>2</sup> Another example is given Wright’s autobiography, the first book of which is prefaced with a two page graphic *nature pattern* labeled ‘Family’. [fig5\_wright\_family]

<sup>1</sup> Frank Lloyd Wright, 'An Organic Architecture: The Architecture of Democracy' Lund and Humphries, London. (1939) reprinted in *Frank Lloyd Wright Collected Writings Vol.3: 1931-1939* (Rizzoli, 1992), 302. Note: In the spring of 1939 Wright was invited by the Royal Institute of British Architects to deliver a series of four lectures and to hold the Sir George Watson Chair of the Sulgrave Manor Board. The last three lectures were prefaced by color films of Wrights homes and studios, Taliesin in Wisconsin and Taliesin West in Arizona (under construction at that time). The films were made by James Thomson, a Taliesin apprentice. The four lectures were transcribed and published in 1939 under the title 'An Organic Architecture: The Architecture of Democracy'.

<sup>2</sup> Edgar Tafel, *Years with Frank Lloyd Wright: Apprentice to Genius* (New York: Dover, 1979), 3.



[fig5\_Frank Lloyd Wright, *An Autobiography, Book One: Family* (1932)] FLLW

Following the musical title 'Prelude', the first pages of the book are dedicated to a narrative description of this drawing's meaning. The opening passage merits quoting directly:

*A light blanket of snow fresh-fallen over sloping fields, gleaming in the morning sun. Clusters of pod-topped weeds woven of bronze here and there sprinkling the spotless expanse of white. Dark sprays of slender metallic straight lines, tipped with quivering dots. Pattern to the eye of the sun, as the sun spread delicate network of more pattern in blue shadows on the white beneath. "Come, my boy," said Uncle John to his sister Anna's nine-year-old. "Come now, and I will show you how to go!"*

*Taking the boy by the hand he pulled his big hat down over his shock of gray hair and started straight across and up the sloping fields toward a point upon which he had fixed his keen blue eyes. Neither to right nor to left, intent upon his goal, straight forward he walked – possessed. But soon the boy caught the play of naked weed against the snow, sharp shadows laced in blue arabesque beneath. Leaving his mitten in the strong grasp, he got free. He ran first left, to gather beads on stems and then beads and tassels on more stems. Then right, to gather prettier ones. Again – left, to some darker and more brilliant-and beyond to a low-spreading kind. Farther on again to tall golden lines tipped with delicate clusters of dark bronze heads. Eager, trembling, he ran to and fro behind Uncle John, his arms growing full of "weeds." A long way up the slope, arrived at the point on which he had fixed, Uncle John turned to look back. A smile of satisfaction lit the strong Welsh face. His tracks in the snow were straight as any string could be straight.*

*The boy came up, arms full, face flushed, glowing. He looked up at his Uncle – see what he had found! A stem look came down on him. The lesson was to come. Back there was the long, straight, mindful, heedless line Uncle John's own feet had purposefully made. He pointed to it with pride. And*

*there was the wavering, searching, heedful line embroidering the straight one like some free, engaging vine as it ran back and forth across it. He pointed to that too – with gentle reproof. Both stood looking back. The small hand with half-frozen fingers was again in its mitten in the older, stronger hand; an indulgent, benevolent smile down now on the shamed young face.*

*And, somehow, there was something...not clear.*

*Uncle John's meaning was plain - Neither To Right Nor To The Left, But Straight, Is The Way. The boy looked at his treasure and then at Uncle John's pride, comprehending more than Uncle John meant he should. The boy was troubled. Uncle John had left out something that made all the difference.<sup>3</sup>*

Wright's remarkable *graphic narrative* evokes a number of our themes – nonlinearity, intergenerational legacy, ecological sensibility – and having spent time with Lloyd and the family history in the last chapter we can appreciate more deeply Wright's expression of sentiment in both *word* and *form*. We do not have these stories for all of Wright's graphic *abstractions*, but sometimes their titles or contexts provide the suggestive basis for interpretation.

Following the theme back in time we find two *nature patterns* that are particularly relevant as we enter into a consideration of a *charter of elements*, as they are graphic *abstractions* of the elements themselves. The first is at Aline Barnsdall's Hollyhock House (1919-24), where Lloyd Wright's design for a watercourse system was an important feature of the design – a system you'll recall was not fully implemented, whose terminus was the unbuilt kindergarten. But part of the water system was installed, a circuit that is a loop from the courtyard garden, through the house and living room, where you see it here as a small stream surrounding the fireplace. [*fig6\_barnsdall\_elements*]

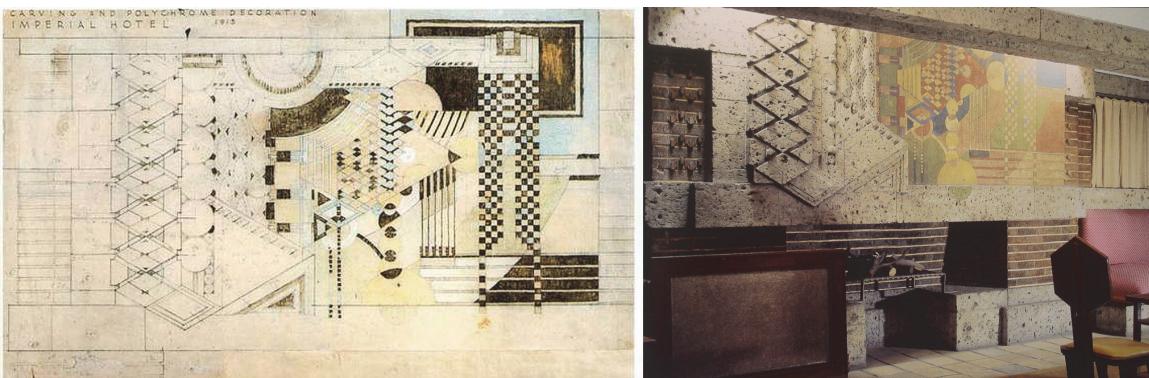


[*fig6\_Frank Lloyd Wright, Barnsdall House, fireplace mural (1921)*] An abstraction of the four elements. *Images: the author*

The composition of the mural above is similar to the *Friends of Our Native Landscape* graphic, in this case depicting a view of the Los Angeles landscape in which the interaction of earth, water, wind and fire are geometric patterns framed by these real elements in close proximity – and recalling

<sup>3</sup> Frank Lloyd Wright, *An Autobiography*, 3rd printing edition (Duell, Sloan & Pearce, 1943), 3–4.

Semper's architectural correlation roof with rain, walls with wind, foundation with earth, and hearth with fire. The next example is very similar, and comes from the same period – Lloyd Wright was supervising construction of Hollyhock House when his father was in Tokyo overseeing construction of the Imperial Hotel. The fireplaces in public spaces throughout the hotel featured murals like that at the Hollyhock House, except that their sculpted surfaces incorporated flat areas where polychrome compositions interact with the patterns in relief. [fig7\_imperial\_elements]



[fig7\_Frank Lloyd Wright, *Imperial Hotel, fireplace mural* (1920)] FLLW 1507.348, (right) Meiji-Mura Museum

Again, in An Autobiography he reflected that he was making the drawings for these deep relief stone panels as quickly as the craftsmen were sculpting them. He describes stepping into the yard adjacent to his drafting studio on site an hour after producing a drawing and finding half a dozen pieces already made:

*How skillful they were! What craftsmen!...So instead of wasting them by vainly trying to make them come our way—we went with them their way. I modified many original intentions to make the most of what I now saw was naturally theirs...It is true that the Japanese approach to any matter is a spiral. Their instinct for attack in any direction is oblique and volute...They soon educated us and all went pretty well...And the workmen grew more and more interested in it. It was [a] common thing to see groups of them admiring and criticizing too as some finished portion would emerge — criticizing intelligently.<sup>4</sup>*

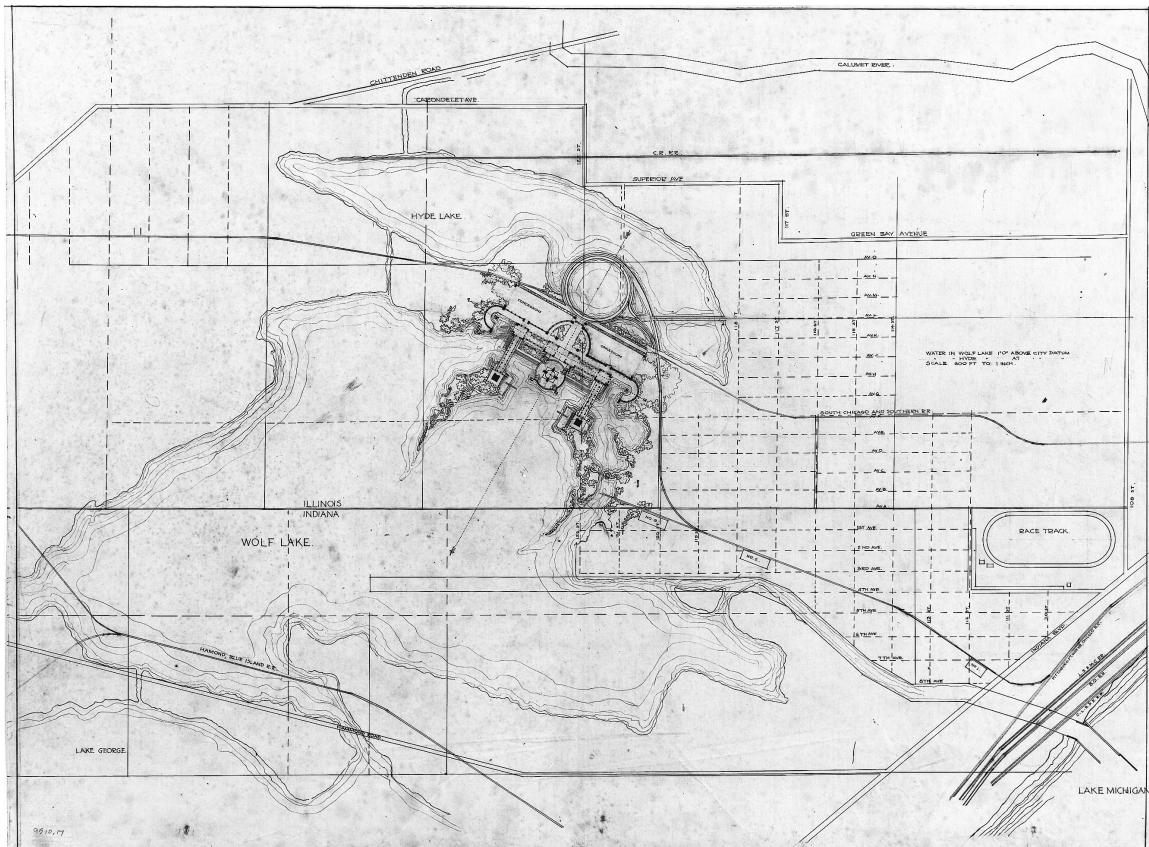
So the narratives represented in these graphic *abstractions*, these *nature patterns*, are often quite explicit. One last example illustrates how projects themselves often embody more implicit meanings. One of Wright's earliest projects was for a wealthy client, Edward C. Waller, who later commissioned Wright to design many other projects, including *Midway Gardens* – named after Olmsted and Vaux's *Midway Plaisance* in Chicago, the axial *park system* corridor in Chicago – where the 'gardens' were sited at the

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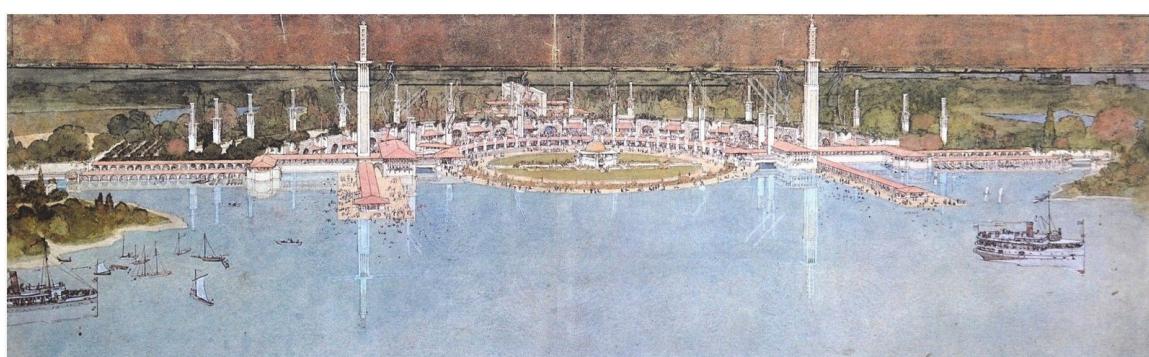
<sup>4</sup> Wright, 217–18.

junction facing directly onto Washington Park (much as the Guggenheim was later sited facing onto Central Park).

In this earliest project for Wolf Lake (1894), it seems evident that Wright is somehow responding to the Columbian Exposition, which he had visited many times when it was open from May-October the previous year. [fig8\_wright\_homage] The *trope* is again in evidence, but whereas Olmsted and Burnham's composition sat inside the shoreline and drew the lake into a canal-like courtyard, Wright has pushed his composition into the lake itself, and the inland portion consists of a single semi-circular exedra.



[fig8\_Frank Lloyd Wright, *Wolf Lake Amusement Park* (1895)] Homage to Sullivan, for E.C. Waller. FLLW 9510.017



[fig9\_Frank Lloyd Wright, *Wolf Lake Amusement Park, view* (1895)] FLLW 9510.001

This interpretive relationship between Wright's early project and the Columbian Exposition is reinforced by the watercolor perspective view, whose composition framed the subject in a manner very similar to the widely published color views of Olmsted and Burnham's 1893 waterfront design.

*[fig9\_wright\_wolf\_lake]*

But on an even deeper level, just as Lloyd Wright's regional *park system* can be read as a memorial to his father, the Wolf Lake project can be read as Wright's homage to his own mentor Louis Sullivan, his *lieber Meister* – for whom *nature patterns* were *A System of Architectural Ornament*, and from whom he was then just recently estranged.<sup>5</sup> I was clued into this by interpretive reading by another statement in Wright's autobiography, cited earlier in another context. Wright is describing his ambition to develop Sullivan's idea of *integral ornament* into more than a metaphor, making it 'live' as the basis of the architectural plan itself:

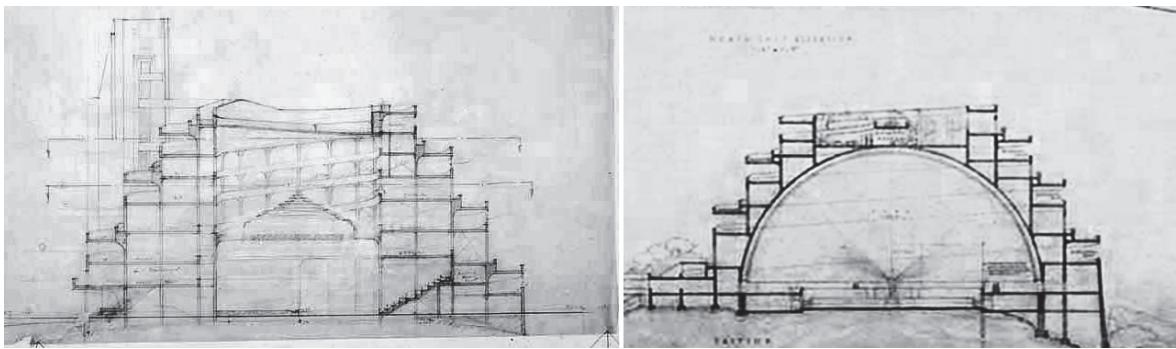
*But now, why not the larger application in the structure of the building itself in this sense? Why a principle working in the part if not living in the whole? If form really followed function...why not throw away the implications of post or upright and beam or horizontal entirely?...Now why not let walls, ceilings, floors become seen as component parts of each other, their surfaces flowing into each other. To get continuity in the whole, eliminating all constructed features just as [Sullivan] had eliminated [planar] background in his ornament in favor of an integral sense of the whole. Here the promotion of an idea from the material to the spiritual plane began to have consequences. Conceive now that an entire building might grow up out of conditions as a plant grows up out of the soil.<sup>6</sup>*

Clearly Wright did come to see it that way, and I believe that the ornamental figure of the Wolf Lake plan is an early example – possibly the earliest example – where Wright reads the site for the spatial and programmatic forces at work, adopts a geometric figure derived from those forces, and then elaborates an interweaving of architecture and landscape and space that is distinctly ornamental in sensibility while structural in conception. A dramatic development in this structural/spatial evolution occurred in 1925, with the design for the Automobile Objective, a mountaintop destination for automobile enthusiasts to drive to the summit. *[fig10\_wright\_structure]* The project is in many respects similar to Patrick Geddes and Elisee Reclus's World Museum project for the 1900 Exposition Universelle in Paris – which itself was based on James Wyld's Great Globe built in Leicester Square in 1851 for London's the Great Exhibition.

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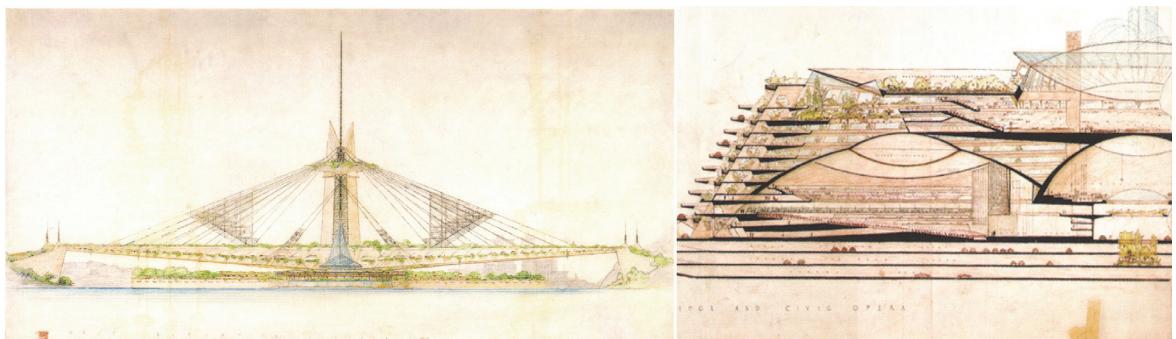
<sup>5</sup> Louis Henri Sullivan, *A System of Architectural Ornament : According with a Philosophy of Man's Powers*, Facsimile ed. (Park Forest - Ill: Prairie School Press, 1964).

<sup>6</sup> Frank Lloyd Wright, *An Autobiography*, 3rd ed. (New York: Pomegranate, 2005), 146–47.



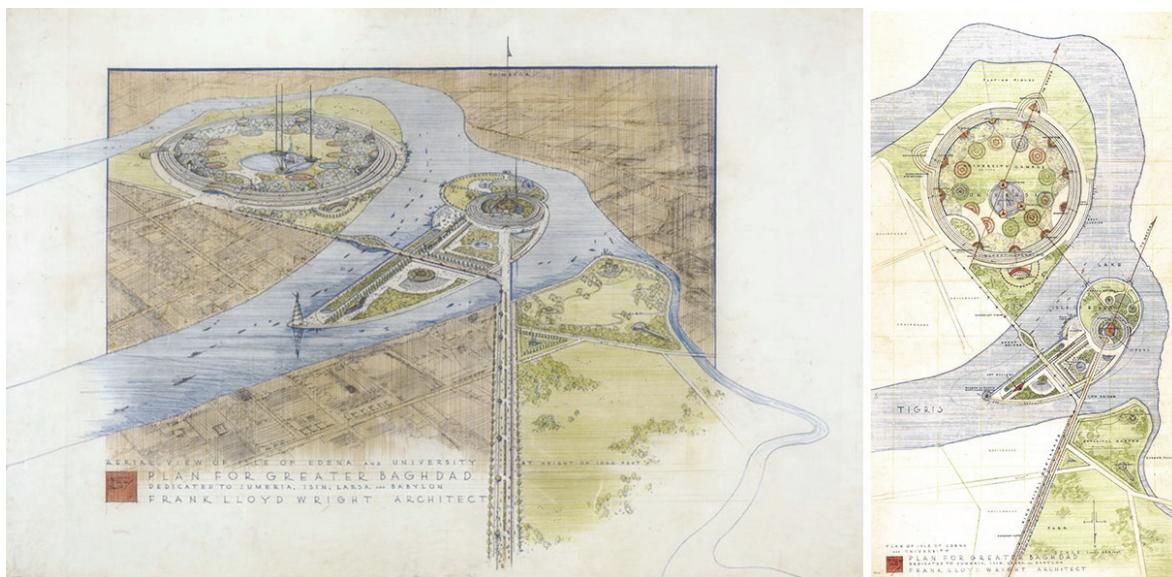
[fig10\_Frank Lloyd Wright, *Automobile Objective*, sections (1925)] FLLW 2505.090/099

Structurally, Wright had initially proposed something similar to these projects, as the image shows at left, but at right you see Wright's radical redesign – based on his recognition, developed with his structural engineer Paul Mueller, that if you could the roadway in the shape of a dome it will be self-structuring. Twenty years later Wright adapted this scheme for the Point Park Civic Center in Pittsburgh, but splaying the geometry and allowing light and air to penetrate the structure – resulting in a civic center that generates its own urban scale microclimate. [fig11\_wright\_pittsburgh]



[fig11\_Frank Lloyd Wright, *Pittsburgh Point Civic Center*, (1945-47)] FLLW 4821.037/023

Another ten years later, near the end of his own life, the strategy is further elaborated in Baghdad so as to incorporate the judicial center, cultural districts and a dozen school campuses situated along a continuous microclimate generating circulation loop that doubles as a parking ramp. [fig12\_wright\_baghdad] As we have learned, for Sullivan *systemic ornament* was a bridge between art and science, between the organic and the inorganic – in the hands of his apprentice, Wright, the ornament became the city itself, mediating between nature and culture. This aspect of Wright's work has not been discussed, and it will be an important point of reference for any civic design discourse that might yet be taken up.



[fig12\_Frank Lloyd Wright, Plan for Greater Baghdad (1957-59)] FLLW 5733.008/009

We came from *The Charter of Friends*, and entered into this sequence of examples through the nature patterns graphic, so remarkably linking this unbroken chain of architectural, structural and spatial-thermal innovation. So, now, what could we hope? If these geniuses, well financed and well organized – successfully contributing to Chicago’s *park system* and coordinating the conservation of many thousands of acres of habitat, not to mention producing architecture like this – if their organization ultimately was disbanded, what hope might we have of coming anywhere near the success they achieved, to say nothing of improving upon it? What is different in our case is revealed in the second bylaw of the Charter of Friends, where it states:

*The object of the [Charter] is the conservation of that spiritual power of the American landscape which belongs of right to mankind, yesterday, today and forever, as a perennial fountain of education and joy.*<sup>7</sup>

This thoughtful sentiment might stand for our own charter and we’d need not trouble ourselves to write a new one were it not for that phrase ‘belongs of right to mankind.’ But our ambition is informed by the distinction made in the Swiss Constitution – that the purpose of the constitution is ‘to ensure the dignity of living beings’ – and by the Federal Ethics Committee on Non-Human Biotechnology’s clear thinking advocacy of this in their official 2008 report *The Dignity of Living Beings with Regard to Plants – Moral consideration of plants for their own sake.*<sup>8</sup> While the *Charter of Friends* helped Jensen and his fellow conservationists, pedagogues, industrial philanthropists and civic designers to successfully

<sup>7</sup> Jens Jensen, “The Charter of the Friends of Our Native Landscape” (The Friends of Our Native Landscape, 1933), 2, UCLA Lloyd Wright Papers.

<sup>8</sup> Jackie Leach Scully and Bachmann, trans., “The Dignity of Living Beings with Regard to Plants: The Moral Consideration of Plants for Their Own Sake” (Bern: Federal Ethics Committee on Non-Human Biotechnology, April 2008).

augment their city's *park system* by preserving thousands of acres of habitat, they did to on the basis that it 'belongs of rights to mankind,' and effectively made of it a *hinterland*.

Former National Parks and Smithsonian Institute director Roger Kennedy has described the cosmology of this casual *anthropocentrism* as the 'theology of dominance.'<sup>9</sup> In his last public statement before his death, Kennedy addressed a number of points that may help us here to trace the arc of this line of thought. Kennedy pointed out that it is often assumed that Christianity had acquiesced to a 'theology of dominance,' even literally capitalized on have capitalized on it. The origins of this theology, he argues, stem from the first two chapters of Genesis,

*...in which dominance is a description of the role of Adam and Eve before they broke the covenant. When Adam and Eve transgressed their limits when Adam and Eve decided to break through the membrane within which they were held to their obligations and limits they lost their dominance. There isn't a word in the Old Testament confirming that sense of humans as the dominant species after the third chapter of Genesis. After the loss of dominance comes the law. After you transgress your limits comes the Endangered Species Act. After you lose and break your covenant you require some kind of order.*<sup>10</sup>

Asked about ecological issues he stated: "We are as a nation an ambulatory set of brownfields. We need to gather ourselves together and purge ourselves and get cleaned up."<sup>11</sup> Asked about the differences he experienced working at the National Parks Service and at the Smithsonian, Kennedy replied,

*I did not serve in the Marine Corps so the Park Service was my first exposure to that kind of that kind of organizational ethos. The Smithsonian is a disparate collection of people, like a university, not the same thing at all. The National Park Service at its very best is the collection of people who believe in their mission, are trained for it, are competent in it, and are rooted in particular places. Those are marvelous characteristics.... and for me it was inspiring to be buoyed up by a bunch of people who believed in their task and had considerable courage practicing it. We did not have an easy time...Park Service people [are] Marines for the environment...19th century military institution.<sup>12</sup>*

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<sup>9</sup> Roger G. Kennedy, *Hidden Cities: The Discovery and Loss of Ancient North American Civilization* (New York: Free Press, 1994).

<sup>10</sup> Roger Kennedy, "The Political History of North America from 25,000 BC to 12,000 AD," Long Now Foundation, April 25, 2011, n. 52:22-53:26, <http://longnow.org/seminars/the-political-history-of-north-america-from-25000bc-to-12000ad/>.

<sup>11</sup> Kennedy, n. 60:48-61:00.

<sup>12</sup> Kennedy, n. 61:47-62:53.

In response to the question, “We live in a society the deals with complex public policy matters in simplistic I win you lose terms. How do we move such a society to engage in a values-based dialogue?” Kennedy’s response was,

*Well it seems to me that once you are able to connect persons to a fundamental principle that is benign, once you find in persons of any political orthodoxy commitments to fundamental principles, you can draw forth from them sufficient tactical assent to parallel behavior pheasant too complex a notion you can draw forth from people of many persuasions action that will last long enough to get something done I don't think we can possibly be presumed to agree on our rhetoric, or on our habits of thought. We can agree upon fundamental principles. And I think there's a lot more agreement on that in this country than is being evoked by the dull dry secular dialogue.<sup>13</sup>*

He was even asked explicitly about the contested legacy of conservation in terms of allegiances to rural or urban preferences, to which he replied:

*...there are two traditions in American environmentalism: one is that of John Muir, and the other is that of Jonathan Edwards, they cross over in many ways. It is, I think, entirely possible to reach a determination to honor the earth and others. I think it's entirely possible to do that living in a monastery in a medieval city. I think that's possible, it was possible...I think it's harder most of us when we consider in our own lives the moments in which we have had some transforming experience of relationship to the earth and the other a sense of self transcendence that has occurred to us in the presence of a very limited number of people if any in nature but that isn't true of all persons. And it is not true that there is just a rural or country or wilderness environmental consciousness and tradition. There is a gardening tradition as well! We tend to be a little exclusive in our in our sense of what our relationship to the earth is, and how much of it we require in any event. Like you, I very strongly feel that it would be a very good thing for the opportunity to be there for that kind of externally evoked moment of transcendence and participation. It is both transcendence and participation, but my own observation in the last four or five years is that the places in which there is the most vigorous, resonant, determined view of a necessity for reform in social and environmental causes is not in people who are at great distances from each other – it is among people who are very close to each other, in communities.*

*So I'll take it anywhere I could get it but I think we can get it in both places.<sup>14</sup>*

Asked about the divisive atmosphere of contemporary political discourse, he spoke to the subject with remarkable directness:

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<sup>13</sup> Kennedy, n. 63:10-64:37.

<sup>14</sup> Kennedy, n. 69:36-72:24.

*I also think that there's a role for rhetoric – for the rediscovery of a passionate rhetoric – and that role is an absolute necessity. What we need to do is to recover the gut, to recover a rhetoric that speaks to the tummy, and to the genitals, and to the heart. That is a rhetoric that is a necessity. It is not possible for us to be led into sacrifice by an affirmation of selfishness. We're going to win on this because we have the argument for love. They do not.<sup>15</sup>*

Finally when, following a brief review of some of the problems facing society, the audience member asked if he was optimistic about the future of humanity in the age of the Anthropocene, he said:

*...this description that you have offered could have been offered in the 10<sup>th</sup> century at Cahokia in the second century at Edina, just speaking of American places [that have] been in these kinds of circumstances before. We are offered a sequence of opportunities to respond to the world's condition as we find it...and one of the blessings of the human brain is that it is not it is not a linear mechanism it's a mechanism that responds to necessity. That is what is called grace. So I guess the answer I would offer to you is that we can [address climate change] if we are willing to admit [our mistakes and] make ourselves susceptible both to intellect and to grace.<sup>16</sup>*

So it is with this willingness ‘to make ourselves susceptible both to intellect and to grace’ that we enter the concluding issue of this research. The issue is climate: and more specifically, it focuses on the relationship between climate change and politics – in the form of ‘design’ policy. How do we think about the politics of climate change? How can design heuristics inform official policies and common practices to better cope with climate change, and to better act in a politically effective and democratic manner? It would be very nice if the best way to cope with climate change were simply though democratic processes, from the bottom up. But likely that is not the case, so we are interested in identifying where the complexities are in thinking about this nonlinear relationship between political action and the actions needed to address climate change. Before considering how we can solve this problem, we need to think about what is difficult about it. So let’s look at the difficulties.

#### *ii. Political Time and Geological Time*

One of the major difficulties is the vast difference between the periodic cycles of politics and of nature. Around the world elections are held nearly every year, but climate change is a very slow process. This, in and of itself, makes it very hard to get to interventions that make sense. Regarding climate change, U.S. President Obama has said, “You can ignore the facts; you can’t deny the facts.” He goes on to say,

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<sup>15</sup> Kennedy, n. 74:37-75:56.

<sup>16</sup> Kennedy, n. 76:36-77:17.

*So the question is not whether we need to act. The overwhelming judgment of science, accumulated and measured and reviewed and sliced and diced over decades, has put that to rest. The question is whether we have the will to act before it's too late. Because if we fail to protect the world we leave our children, then we fail in the most fundamental purpose of us being here in the first place.<sup>17</sup>*

In recent years we have seen the subject of climate change as a political expedient by financial and commercial interests, and popular polemics around the subject can be characterized by misinformation on one hand, and by high-risk technological solutions on the other. Exemplary of the limits of such polemics, it is considered a commonplace now that American politics is highly polarized and sharply divided – between rich and poor as much as between the two primary political parties. The cumulative social dimension of this can be researched spatially. As regards politics one sees, for example, the consistent (often 1:1) correlation between former slave-holding states voting Republican and slave-free states voting Democrat.

But while this correlation is statistically true, if taken on its own as the basis for interpretation it would, in its binary over-simplification, obscure another equally important social principle at work: that of education. Taking the same binaries of slave state/free state, republican/democrat, we can add the proximity of educational institutions – a variable which reveals that regardless of the state, individuals living within proximity to educational institutions are more likely to vote Democrat. If we make a further distinction according to the type of institution, other binaries emerge: educational institutions of finance harbor a greater share of Republican voters, and those inclusive of studies of the humanities tend to foster Democratic voters.

These binaries lend themselves to political opportunism, and are yet another facet of a ‘divide and conquer’ paradigm. Divisiveness and antagonism in the political sphere is cultivated in the media and is played out through families, communities and society at large – often making consensus-based action on even simple issues difficult. Aspirations toward rational, knowledge-based consensus are tempered by such illustrative examples, and by the study of human society itself as a biological organism. Individual participants experience certain physiological effects resulting from group activities – some are consciously tempered, like the volume of one’s voice, while others are subconscious, like the synchronization of singers’ heartbeats in a chorus. They may also have unanticipated cumulative effects. Take, for example, the resonant physical power generated by the subconscious synchronization of footfalls in a crowd. In London, in the year 2000, the cumulative power of these subconsciously synchronized footfalls destabilized the Millennium Bridge and led to its closure for re-engineering shortly after its opening. Another example from that year, the hysteria surrounding the ‘Millennium Bug’ – which in some regions led to stockpiling and dramatically

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<sup>17</sup> Barack Obama, “Remarks by the President on Climate Change,” The White House, June 25, 2013, <https://obamawhitehouse.archives.gov/the-press-office/2013/06/25/remarks-president-climate-change>.

increased sale of firearms – illustrates the real-time social crises that can result from the cumulative behavior of individual humans.

Groupthink and collective consciousness are apparently opposite manifestations of the same unifying social phenomenon – groupthink being a phenomenon of large, centralized institutions and characterized by a sense of anxiety, while collective consciousness occurs at a distance between smaller groups and is characterized by a sense of well-being. Studies regarding humanity's collective consciousness find correlations in the study of various life sciences, from the flight formations of migrating birds to the apparent increase in human activity during periods of intense solar activity. Explicitly hierarchical and 'top-down', institutionalization tends toward groupthink. 'Occupational protectionism' is one of its distinguishing characteristics – whether in academia or in governance, labor or finance. That groupthink is a confirmed social phenomenon at corporations and other large institutions does not necessarily mean that large institutions shouldn't exist, but it does confirm the desirability and usefulness of numerous smaller ones that function as a counterbalance. This difficulty might be characterized as relating large centralized institutions with small, decentralized ones, and as relating institutions to individuals.

### *iii. Genius and Mobocracy*

In their lifetimes Thomas Jefferson unfairly caricatured Alexander Hamilton as representative of the 'old aristocrat,' who saw the poor as there more or less to 'feather their own nest.' But they did have meaningful differences of opinion that are still instructive. Hamilton's concern about *universal suffrage* – or ensuring the right to vote for all citizens – was essentially based on his idea that if all are allowed to vote, whether they really know what they are voting for or against, mediocrity will rise into high places. In fact Jefferson acknowledged the validity of Hamilton's concern, but countered that the vote can be ensured by the nation's educational system – and certainly Jefferson's involvement at the University of Virginia qualified his opinion in the matter. But while it cannot be said that this ambition has been accomplished in any general way, Jefferson's statement of principle on the point is as compelling today as it was when he made it:

*I know no safe depositary of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education. This is the true corrective of abuses of constitutional power.*

- Thomas Jefferson to William C. Jarvis, 1820. ME 15:278

In the evolution of cities – from early agricultural settlements to the contemporary metropolis – there have been occasional intuitive leaps of informed imagination that have contributed to the practice of city-making at a fundamental level. These leaps have drawn from other disciplines and realms of

philosophy. Richard Sennett coined the term ‘domain shifts’ in order to describe the transfer of knowledge from one discipline to another.<sup>18</sup> Often, these shifts leave traces in language itself that are surprisingly familiar: *cantus firmus* (of a distinctly geological analogy) in the discipline of counterpoint musical composition, and *urban fabric* (connoting a weaving of discrete layers and strands) in relation to urban design.

Innovations in the craft of city-making are also enacted by shifts in scale, although these changes are of a somewhat different nature than ‘domain shifts.’ Basic to the inherited legacy of city-making is the notion of the city wall – you are either inside the city or outside of it. In retrospect, one can easily imagine the agrarian’s stacked stone fence, initially used to keep animals in or out, giving rise to a defensive fortress wall over time. But the difference between a defensive wall (military) and a garden wall (grape vines) is obviously more than a difference in size – it is a difference in intent. Essentially the wall is a control device, consuming one space and producing others. Given the current aspirations for the sustainable city, it is important to ask: what are the limits to such notions of control devices, and will they remain a useful part of the identity of sustainable cities? Clearly benefit may still be found in privacy walls as much as in seawalls to protect coastal regions. Yet, because walls are associated with social and political control – from the Great Wall, to the Wailing Wall, to the Berlin Wall and the US-Mexico Wall of Shame – it appears that one of the challenges for our generation will be to conceptualize city-making without the use of walls that operate aggressively in a social sense.

A practical example of this kind of change can be found in a recent municipal park project. At the outset, the municipal client required a peripheral fence and security cameras around a skatepark area.<sup>19</sup> The design team suggested a different strategy, and a meeting was convened with the municipal attorneys to discuss the issue. As the conversation progressed, the group assembled came to the conclusion that, indeed, the fence and cameras actually increased the liability of the city as they falsely implied a measure of security by the city authorities. If someone managed to enter the park and subsequently became injured, neither could they get out nor could others reach them to offer assistance. Ultimately, rather than fences and cameras, the provision of more lights and more paths in the park was agreed to be the best solution. While this stark reversal – from a fenced and monitored approach, to security achieved with illumination and accessibility – was rationalized by perceived liability, it fundamentally represented a shift in attitude. This is just one example of the kind of shifts that architects can make within the domain of their practice to ensure that the public trust is maintained. And, undeniably, the results of this approach to architecture look and feel better: more like a commons.

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<sup>18</sup> Richard Sennett, *The Craftsman* (London: Penguin, 2009), 127–28.

<sup>19</sup> Matthew Skjonsberg and Gregg Miller, “Case Study: West Side Skate Park,” in *Architectural Graphic Standards*, ed. Ramsey and Sleeper, 11th ed. (New Jersey: Wiley and Sons, 2007), 724–27.

Arguably the most effective form of social order is produced voluntarily, through the means of mutual understanding and common sense, including self-control, self-preservation and an understanding of the implications of one's actions toward one's neighbors. Such voluntary order can be exemplified by conscientious activities like recycling, shoveling snow from your sidewalk or restraining yourself from behaving in ways that disturb or harm others. Of course, there are many areas of overlap between these voluntary forms of control and forms of control emanating from external sources – namely from law enforcement or the implicit threat of retribution. However, both forms have their limits set by ethics. One noteworthy limit to the ambition for control was established by international law in 1976 when the United Nations passed the *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques*. (Adopted by Resolution 31/72 of the United Nations General Assembly on December 10, 1976. The Convention was opened for signature in Geneva on May 18, 1977)

An interesting implication of this resolution for architects and planners is that while they may concern themselves with affecting the environment at the micro scale, over the long run, their choices do have cumulative environmental consequences at the macro scale. Regulations such as the UN Convention do not specifically account for such cumulative effects of unregulated, aggregate activities and for the effects of inadvertent environmental modifications over the long run. These are regarded, in the parlance of the insurance and legal industries, as *force majeure* or acts of God – faith is, in this way, used as a pretense by which to externalize culpability. As U.S. Republican Senator James Inhofe, the new chair of the U.S. Environment & Public Works Committee, told the Senate at their opening session on January 22, 2015: "Climate is changing, and climate has always changed. And it always will...there's biblical evidence of that...The hoax is that there are some people who are so arrogant to think that they are so powerful, they can change climate. Man can't change climate." While law may establish the limits of a discipline, the effectiveness of any law depends on its enforceability. Activities beyond the law are regarded as the prerogative of those capable of effecting change on the scale of acts of God. There are a number of such cases worth considering, including those of geo-engineering, the questionable science behind the deployment of stratospheric sulfate aerosols, and the practice of establishing such high-risk technologies as nuclear facilities in earthquake-prone regions or, arguably, in any region of the earth at all. We see that the high risks involved in these endeavors – risks that reach the scale of acts of God – are institutionalized, and that disasters linked to them are routinely exploited as economic opportunities by corporate interests.

In this context, we must view the cumulative development activity of architects and planners, that of city-making, as a means to an end: fundamentally, the city is a communal survival strategy for *Homo sapiens*. In today's cities, we expect the advancement of equal opportunity, freedom of movement and more or less universal accessibility for citizens in terms of both physical and social space. Simultaneously, however, citizens have come to accept rather constant levels of surveillance and

control. Given this situation, how do we envision the infrastructure of justice in a sustainable city? Can a sustainable city safeguard the justice of its citizens with such rudimentary means as transparency, openness and illumination, or is surveillance and control essential? This issue is at the heart of the discipline's debate about how and of what the city should be conceived. Those who profess greater openness through an honor system are often characterized as naive (bleeding-heart communists) or as calculating (cold-hearted capitalists). We can say that public trust in law enforcement actually acts as a restraint to powers that would otherwise overreach the edifice of justice. But when it comes to the control of resources in the semi-public sphere, we see that the term 'semi-public' is actually a euphemism for 'private.' Control that is based on law directly determines the form and shape of any public space. The means of control and the processes of city-making are often directly analogous.

#### *iv. Risks: General and Particular*

The World Economic Forum's 2015 study of global risks (WEF Global Risks 2015, 10th Edition, *URGENCY INTERDEPENDENCY: Risks, Uncertainties and Opportunities*) shows that both the likelihood and impacts of all these crises – climate change, water crises, border security, etc. – increase, but not only that: they are interdependent at a regional scale. So while the response after a crisis tends to focus on infrastructure, it is not about infrastructure alone. The fact is that each crisis affects our society as a whole – in all its complexity – and these crises are connected at a scale that makes them difficult to deal with, because it is not about the city boundary, or a conservative mayor, or a progressive governor. They cross all boundaries.

And it is only just beginning. Maybe we thought we'd seen it all, but we don't know what we are facing. And this uncertainty makes it clear that this is actually our ball game - because of the interdependencies, we can recognize that there is something to do: we can act. We can intervene to mitigate the effects of climate change. How to be able to work with what disasters leave behind, so as to better repair, adapt and mitigate in the future?

Climate studies consistently demonstrate that with accelerated climate change the likelihood of disasters increase. So we will get more impacts, and their likelihood is growing. We are not even halfway along the curve when it comes to experiencing anticipated impacts. Disasters around the world often prompt misdirected anger towards the environment itself. This is a cultural response that is not very progressive – but when you've lost your house, or your business, or your wife, or your daughter, you are not in the position to be objective and to say, 'Ok, let's prepare for the next event. Let's mitigate and adapt. Let's be very innovative. Let's embrace the reconstruction initiative'. Rather, having experienced irredeemable loss, you are justifiably angry, and the government is too slow – slower even than climate change, it feels – and, knowing how things work, it is as likely as not that the money goes to your neighbor, who hasn't lost anything. So you want to build back what was there, you want to reinvent what was lost. You want your daughter back, your business back. So you look back.

Personal perspectives taken of these crises – which are getting worse, and more frequent – tend to be very reactionary, and backwards looking, and these responses mirror how governance usually works. For example, the money the U.S. government is spending on disaster response to date (in the 1980's, \$20 billion annually, to now, \$90 billion annually) is by and large only for repairing what was lost – and not for 100 percent repairs, but really only for what is expedient to repair. So it is not *prepare* money, it is only *repair* money. And that is exactly what is done: we don't prepare, we repair. At the same time, we know that it is not the best way forward. So we have a cultural situation where people lost everything, and the official response tends to validate a widely felt mistrust of government. Those people who are left certainly know that building again on a flood-prone site is not the best option. But what can they do? What are their options? How to manage evacuating high-risk zones while ensuring equity for those who must be relocated?

As it is, the risks related to natural disasters are greatly amplified by our own energetic and industrial infrastructure. For example, in their research on the Sandy-affected regions of New York and New Jersey, the *Rebuild By Design* initiative crossed city and state boundaries, showcasing vulnerabilities and interdependencies across the region. The scary facts, as revealed by that research, are that 75 percent of power supply infrastructure in the New York/New Jersey region is in the flood plain, as is 80 percent of liquid fuel storage – the other 20 of which is directly adjacent to it. And when you overlay a map of vulnerable populations – meaning low-income communities – on the flood plain, the inequity is already clear. In fact it is shockingly common for numerous risks to be clustered together in the flood plain. In Newark, New Jersey, a chemical facility storing Agent Orange was situated next door to social and low-income housing, where they had to close the playground after Sandy because the soil lit up at night. It was too polluted for the kids to play there. Again, the impact of such a storm is not just about infrastructure, it is about ecological, cultural, social and economic communities. When Sandy hit Manhattan, instead of all these neighborhoods it turned into two neighborhoods – NOPO and SOPO: north of power and south of power – highlighting the inequity of an unjust and biased energy grid through remarkably protracted and vividly class-revealing power outages.

For comparison, in The Netherlands power stations are built above the 10,000 year flood level – and governance of the system is a collaborative effort with a remarkable legacy. In 1122 a group of citizens in communities around Utrecht, in the middle of The Netherlands, got tired of getting their feet wet: their land was flooded over and over, and every time they built something they had troubles with the neighbors. So they started to collaborate. The result was a group of elected officials that ran that part of the region collaboratively, and they paid taxes for one reason only: to safeguard the region from flood. So this seasonal climatic condition led to Holland's first democratic elections in 1122, even before The Netherlands was a country, enabling collaborative responses to the question of how to be safe in a very complex and uncertain world. Out of this came great engineering and design projects,

but it was the collaborative effort itself that was the basis for creating a level playing field – a way to move forward relating human endeavors to environmental dynamics within the region.

The difficulty is that people easily forget about this legacy. As recently as last year the leading political coalition in The Netherlands suggested to eliminate these collaborative water governance boards. They did not do this because they hate water boards – not because they know what they actually do, and know that they are a culturally-grounded key to how you can deal with water in a political sense – but out of a genuine desire for efficiency paired with the ideological objective of diminishing bureaucracy and government, based on the assumption that less government is good. This is exactly the problem – we don't understand what is at stake and how it is run, culturally and politically.

So before coming in with technological fixes (i.e. smart grids) and with infrastructural initiatives (i.e. storm surge barriers), we must understand what is at stake. To paraphrase Scottish biologist, sociologist, geographer, philanthropist and pioneering town planner Sir Patrick Geddes, arguably the founder of regional design: “Survey then plan.” The ideal regional survey and design process was pioneered by Geddes, and is confirmed by current initiatives like *Rebuild By Design*, involving collaborative research conducted across the whole region, bringing in talent from all over the world and connecting that with the talent on the ground, and with local politicians and policy makers, and architects and designers, and a variety of researchers working collaboratively to understand the region’s vulnerabilities and interdependencies.

#### *v. The Big Picture*

Even taking the most conservative projections about sea-level rise, the situation is clear: over the coming decades hundreds of millions of people around the world will have to be resettled – people, families, houses, structures and infrastructures, industries and agriculture – and one of the enormous challenges facing us is to figure out what that process is going to look like. It is not as simple as instituting a buyout program, for example, because there are cultural considerations. You won’t move away from the coast because somebody says, ‘Let’s move away from the coast.’ It is going to happen over the course of successive generations. And the systems underlying incentives - like the National Flood Insurance Program (NFIP), which currently incentivizes reconstruction in flood zones – must be changed so as to enable these long-term objectives. As it is, it is estimated that U.S. has to build another 50 to 75 million houses in the next 50 years, so there is time enough to determine the best places to build these. By changing the way the problem is viewed, it becomes clear that we are working on a hundred year problem, not on a five-year problem. That problem pertains directly to a question rarely asked: where NOT to build?

In responding to current crises, we can get obsessed in talking about specific instances – like heat waves, or high-impact urban storms – presuming they are generally instructive. At least since

Gilbert White proposed moving people away from hazardous areas in the 1940's in response to the Dust Bowl experience, this issue of 'where NOT to build' has come up with everything from earthquakes to coastal zone management – it involves many different conditions in different parts of the world. It also comes up with flash floods, as in mountainous regions, for example, where jurisdictions have been established that have proven quite successful in moving people away from flash flood prone areas. Commonalities and general principles do exist, and specific events like Hurricane Sandy can help to wake everyone up to the reality that we've been attracting people to vulnerable areas when we practice subsidizing reconstruction there.

Sea-level rise is accompanied by desertification, the erratic displacement of water leading to flooding in some areas and to water shortages elsewhere. Worldwide over 1 billion people currently do not have access to water, and a disproportionate number of these people, over 300 million, are living in Africa. The impact that this has on lives, and economies, and health, and life expectancies is profound. Even so, two-thirds of the African continent, where most of these 300 million people are living, has ample rain - two feet of rain, or more, a year. So water shortages in this region are a management issue, rather than a shortage of resources. And yet we see this bizarre situation where across the entire continent people are walking miles every day carrying water, rather than working or attending school. Regarding literacy, worldwide there are 1 billion children who are still not able to read and write, who are still unable to attend school. We see that young girls, in particular, are profoundly affected by this dynamic - they cannot attend school because they are occupied fulfilling obligations just to keep going.

It is important to note that this came about, at least partially, because of a UN policy developed in the 1980's focusing on groundwater as the preferred means by which to address the world's water resource issues. Their advocacy was focused on drilling borehole wells, which – like fracking, as we now know – leads to the permanent depletion of aquifers and disrupts geological stratification, leading to further poisoning of the land and water, sinkholes, and even earthquakes. The assumption made then was that rain was not something that could have a significant impact on the logic of access to water, and was only really useful for collecting in a barrel at the end of the gutter. What if we acknowledge rainwater as a kind of commons? Doing so would be a step towards thinking about water in a way that is ecologically and socially dynamic.

With this we return to the importance of decentralized development – highlighting the essential point that this effort to address climate change through democratic processes is not, and cannot be, a speculative remote control operation. There is something crucial about being on the land, about being *there*. Again, Dutch water governance was historically embodied in the dike-house – an architectural typology in which the house sat on the dike and the engineer lived there, on the dike. Understanding the real issues has to do with *being* there, and architecture can facilitate that human presence.

#### *vi. Questions*

To summarize, the difficulties we face in addressing climate change through democratic processes include: the slowness of geological time; the arbitrariness of political jurisdictions and political boundaries; exploitative polemicism (divide and conquer); the dangers of groupthink, misinformation, technological determinism, and occupational protectionism; institutional relations and reactionary, backward-looking policy where short term repairs are prioritized over long-term preparation; the current vulnerability of fundamental systems (namely energy, water and waste); and understanding what is at stake and how it is run – culturally, politically, and administratively.

In light of these considerations, a number of initial questions have been identified: *How do we think about the politics of climate change? What is the city, and for whom? How do we envision the infrastructure of justice in a sustainable city? Can a sustainable city safeguard the justice of its citizens with such rudimentary means as transparency, openness and illumination, or is surveillance and control essential? How to be able to work with what disasters leave behind, so as to better repair, adapt and mitigate in the future? How to manage evacuating high-risk zones while ensuring equity for those who must be relocated? How do you thrive in an arid wilderness? Where ought we NOT build? How do you drive innovation - not through engineering, not through politicians, not though designers - but through collaboration of all the people in the region, addressing research, building ownership, leadership, and then getting exemplary solutions that actually address these future needs comprehensively? Under what conditions is someone going to succeed to do something for the larger good, and what sacrifices are necessary for that? Are strategies of mitigation and adaptation irreconcilable? How much of what we learn in places endowed with resources is relevant in places that are not so endowed? What if we acknowledge rainwater – and soils – as a kind of commons? Further, if postmodern society is occupied with micro-narratives and is skeptical of meta-narratives, what possible unifying narrative might be shared beyond logistics and governance? Can the technologically advanced city respond to existing social and environmental orders, or must it impose another order? How are the underlying periodicities of cosmic and ecological rhythms – so-called circadian and infradian rhythms – the subject of regional design? How does regional design acknowledge the reliance of culture on nature? How does our inherited evolutionary legacy affect our perception, and how do we design so as to capitalize on that, rather than fight against it? Finally, what design heuristics, or ‘rules-of-thumb,’ are possibly derived from these insights, and what are the relevant metrics by which to assess meaningful thresholds?*

It is estimated by 2050 that 2 billion people will be directly and adversely affected by climate change; by 2080 it is 4 billion. That is a lot of people. The collaborative model of response requires the participation of those affected, and this brings us back to the connection between participation and education. In a lot of urban areas in Africa, or in Asia, where women and children are now more emancipated than previously, they are now educated and can find a job. Because of accelerated climate change and environmental degradation they must move away from the places they know, and where there was formerly water and arable land. Rural migrants are driven ‘by hook or by crook’ into the low-wage economy of the city, often from sites where extractive industries have depleted scarce resources of soil and water. As trade and transportation also rely on stable hydrological systems, water shortages

affect both individuals and industries. So the big picture we are interested in is clearly not only about safeguarding one's house – it is about *designing* and *organizing* one's community, one's region, and one's country through democratic processes and in relation to existing social, economic, and ecological systems, so as to effectively respond to climate change.

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Please note: Sections *ii. Political Time and Geological Time*, *iv. Risks: General and Particular*, *v. The Big Picture* and *vi. Questions* draw on conversations held at the UN-HABITAT III - The New Charter of Athens 'Design of the Public Realm' workshop (organized by Dom Bagnato at London School of Economics, UK, December 4, 2015) with Saskia Sassen, Richard Sennett, Ricky Burdett, Jane Harrison and Henk Ovink, among others. That conversation is here summarily presented in the cooperative spirit of that conversation, several phrases verbatim, courtesy of the conference participants named and UN-HABITAT.

### 3.2 THE METRICS OF UTOPIA: Optionality, Aesthetics and Synoptic Utopia

*Exploring the hypothesis that the simultaneous experience of strongly contrasting sensations is pleasurable, and that ‘abrupt urbanism’ can enhance both rural and urban experience.*

This chapter investigates the dual dimension of Geddes's survey, physical and social, highlighting the importance of the principles of 'synoptic vision' and 'vital budget' introduced in his *Cities in Evolution*, and their relation to the concept of Utopia – to which Geddes gives an original and effective meaning, evolutionary and deeply contextual. Both the notions of synoptic vision and vital budget are based on an organic dimension, addressing body-related metrics in town and country as tools for design and, finally, for establishing democracy. In order to reanimate Geddes for Horizontal Metropolis, the article considers these two concepts and their metrics by inscribing Geddes's theory and statements into a wider chronological trajectory, looking at his legacy as evidenced by his relations with his contemporaries, and more recent affirmations of his proposed associations between the body, energy, mobility, metrics and democracy.

#### *i. Utopian Legacies*

While the word 'utopia' has more recently come to be understood as rather naïve, meaning 'an imagined place or state of things in which everything is perfect,' Sir Patrick Geddes (1854-1932) – Scottish biologist, sociologist, and geographer – characterized his own interest in the evolution of cities as 'frankly eutopian'. Geddes conceived of the current state of cities as transitional and as susceptible to improvement by the use of alternative metrics commensurate with his ideal of 'synoptic utopias.' Thomas More's *Utopia*, published in Latin in 1516, is 'a frame narrative primarily depicting a fictional island society and its religious, social and political customs.'<sup>20</sup> The book introduced the term Utopia both as the book's title and as the name of the invented nation described therein. In the preface to his first book, *The Story of Utopias*,<sup>21</sup> Lewis Mumford – who was then Patrick Geddes's protégé – attributes to Geddes the observation that Sir Thomas More was a punster, and asserts that in coining the term Utopia he was playing on the implications between the Greek terms *outopia* – 'no place' – and *eutopia* – 'the good place.'<sup>22</sup> But in considering this play between meanings we can see another virtue in the term utopia as a potential synthesis of the two implications. Mumford writes of 'one-sided utopias', asserting that both the initial attraction and the perceived failure of utopian ideals are attributable to their tendency toward authoritarianism, uniformity, conformity, homogeneity and the exclusion of alternative modes of life. He observes that the most striking commonality of historic utopian visions is a kind of technological determinism, the implicit ideal of conquering nature. Together these characteristics of 'one-sided utopias,' while generally forwarded as an expedient of security and control,

<sup>20</sup> Thomas More, *Utopia*, 1869th ed. (London: Murray, 1516).

<sup>21</sup> Lewis Mumford, *The Story of Utopias* (New York: Boni and Liveright, 1922).

<sup>22</sup> Mumford, 1.

have the cumulative tendency of diminishing attentive observation, isolating individuals from one another and from their environments.

Indeed, in *Cities in Evolution* Geddes himself writes, “In our present phase, town-planning schemes are apt to be one-sided, at any rate too few-sided. One is all for communications, another for industrial developments. Others are more healthily domestic in character, with provision for parks and gardens; even, by rare hap, for playgrounds, that prime necessity of civic survival: but too many...plans mingle both exaggerations and omissions with their efficiency: in their too exclusive devotion to material interests they dramatically present the very converse of those old...cities, which seem almost composed of churches and monasteries. To avoid such exaggeration, yet incompleteness, what is the remedy? Clearly it awaits the advance of our incipient study of cities. For each and every city we need a systematic survey, of its development and origins, its history and its present. This survey is required not merely for material buildings, but also for the city's life and its institutions, for of these the builded city is but the external shell.”<sup>23</sup> Indeed, the systematic social and physical surveys referred to here were actively developed and subsequent actions taken in his own city, Edinburgh, and then in various ‘cities, great and small, British and Continental’.

Mumford acknowledges that *The Story of Utopias* is in large part the result of his interpretation of Geddes’s ideas, and was written in consultation with him. Indeed, Geddes’s work is dense, and requires some interpretation. As regards Geddes’s written work Michael Batty opines: “In fact, Geddes’s major problem was that he was not a clear communicator. His book *Cities in Evolution...*is much more focused on ideas of regionalism, ecology, civics and participation as well as the longstanding notion of survey before plan, but not on evolution *per se*. As it was, Geddes failed to spell out explicitly his application of evolution.”<sup>24</sup> A large part of the extensive correspondence between Geddes and his protégé Mumford pertains to the elder scholar’s hope that Mumford would become his close collaborator, organizing his material and assisting him in producing his ‘Opus Syntheticum.’<sup>25</sup> This did not come to pass, but as Batty writes, “Despite Geddes’s failings, he can nevertheless be regarded as the first to imprint the analogy with evolution on our study of cities, and in his early years developed many insights into the biology of cities which resonate strongly with current developments. In fact, in his concern for morphology summarized in his massive and learned entry to the ninth edition of the Encyclopaedia Britannica (1883), he articulated the view he held all his life that physical form held the major key to evolution.”<sup>26</sup> He goes on to cite ‘a particularly prescient section’ in *Cities in Evolution* where Geddes asserts, “...towns must cease to spread like expanding inkspots and grease

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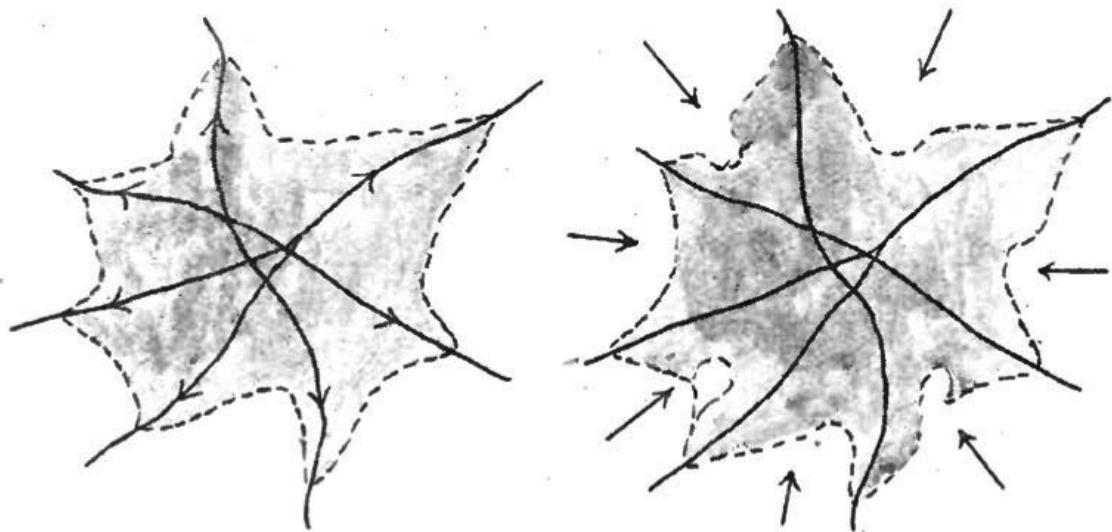
<sup>23</sup> Patrick Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 1968th ed. (New York: Harper & Row, 1915), 255.

<sup>24</sup> Michael Batty and Stephen Marshall, “The Evolution of Cities: Geddes, Abercrombie and the New Physicalism,” *Town Planning Review* 80, no. 6 (2009): 557, <https://doi.org/10.3828/tpr.2009.12>.

<sup>25</sup> Frank G. (Jr.) Novak, ed., *Lewis Mumford and Patrick Geddes: The Correspondence* (London: Routledge, 1995).

<sup>26</sup> Batty and Marshall, “The Evolution of Cities: Geddes, Abercrombie and the New Physicalism,” 557–58.

stains: once in true development, they will repeat the star-like opening of the flower, with green leaves set in alternation with its golden rays.”<sup>27</sup> Geddes precedes this formal description with the statement, “...we, with our converse perspective, coming in from country towards town, have to see to it that these growing suburbs no longer grow together, as past ones have too much done,” and these are illustrated in the book with a diagram titled “Town>Country: Country>Town.”

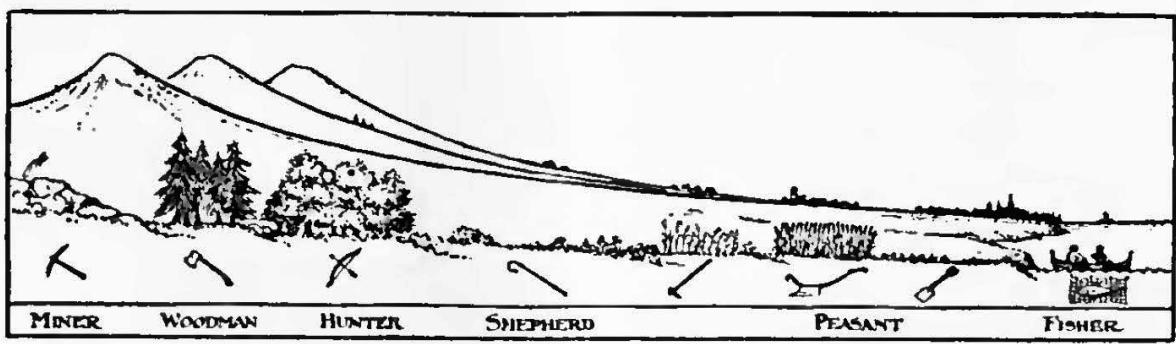


[fig.1\_Patrick Geddes, *Town>Country: Country>Town* (1915)] This diagram, originally labeled “Town>Country: Country>Town” (Geddes 1915, 96) reflects Patrick Geddes’s conception of the expansive tendency of cities, and the reciprocal tendency of the countryside to push back, these two tendencies resulting in an articulated and elongated edge condition of directly adjacent, opposite qualities that imply a positive condition I refer to as ‘abrupt urbanism’. LOC

The diagram reflects Patrick Geddes’s conception of the expansive tendency of cities, and the reciprocal tendency of the countryside to push back, these two tendencies resulting in an articulated and elongated edge condition of directly adjacent, opposite qualities of rural and urban territories. The diagram appears in chapter 5, ‘Ways to the Neotechnic City,’ which opens with a summary describing some deeper implications of what the diagram illustrates: “The cleansing of the city; starting from its mountain and moorland water-supply area, and proceeding inwards to meet townplanning extensions. These extend naturally star-wise along main thoroughfares, leaving unbuilt rustic areas between. These kept from growing together by here placing schools, playgrounds, allotments, gardens, etc. Value of opportunities of activity for youth, and for citizenship: civic volunteering...Such minor changes prepare for greater.”<sup>28</sup> It is interesting that among the fifty-eight illustrations in *Cities in Evolution*, this is the only diagram – the rest are photographs or plans. Certainly the first sentence of this description, ‘starting from its mountain and moorland’, perfectly describes another of Geddes’s diagrams, his famous ‘Valley Section.’

<sup>27</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 97.

<sup>28</sup> Geddes, 84.



[fig2\_Patrick Geddes, *Valley Section of Civilization* (1909)] Illustrating Geddes's notion that cities evolve through an idealized valley section that is both a geographic cross-section and a temporal sequence. Note: ambiguity of initial publication date, generally referred to as 1909, while Geddes's archives hold an undated watercolor matching the description in Civics, and the first verifiable publication date I've found is 1925, also note legacy vis Smithsons, etc. Source: *The Survey* magazine, New York. LOC

Viewed side by side these two diagrams reinforce one another – the ‘valley section’ could be taken from any of the ‘star-wise’ thoroughfares – verifying the consistency of Geddes’s ambitious formal conception of regional dynamics in plan and section, as in space and in time. These two diagrams, stable images indicating explicit dynamics, effectively illustrate the city’s formal *imageability*, and provide an aid – even an armature – for design.<sup>29</sup> Such a synthetic reading of the city can provide the spark of contextual formal design – design having to do with conceptual coherence, as distinct from planning, which is focused on implementation and logistics. Geddes’s diagrams make an important point about the *horizontal metropolis*: having low or medium population densities it is somehow more difficult to conceptualize, and design is about the mental image – it is about the initial stage of conceiving and outlining the main features of a plan.<sup>30</sup> Geddes helps us not to lose wholeness, and uses diagrams to memorably illustrate such rules-of-thumb. By embodying abrupt dualities, strong contrasts, Geddes diagrams emphasize these polarities of the small town and rural countryside together, side by side. Again, Geddes’s valley section inspired subsequent generations, notably including Alison Smithson (1928-93), to see rural and urban as polarities *in situ*. This is crucial because neither Geddes’s *synoptic utopia* nor *horizontal metropolis* are produced by remote planning, *per se*, but rather by the diverse aspirations of actors physically present – relating to the collective dimension – again highlighting the fundamentally democratic nature of this ideal. To this end, both Geddes’s *vital budget* and *synoptic vision* function as transverse notions relevant to *horizontal metropolis* for the democratic design of the city, from a collective point of view.

<sup>29</sup> Kevin Lynch, *The Image of the City*, Publication of the Joint Center for Urban Studies (Cambridge, Massachusetts: The MIT Press, 1960).

<sup>30</sup> Kostas Terzidis, “The Etymology of Design: Pre-Socratic Perspective,” *Design Issues* 23, no. 4 (October 1, 2007): 18, <https://doi.org/10.1162/desi.2007.23.4.69>.

## *ii. Synoptic Vision*

Citing Aristotle as the ‘founder of civic studies,’ Geddes reflects on his insistence upon “seeing our city with our own eyes.” He urged that our view be *synoptia*, “...a seeing of the city, and this as a whole...Large views in the abstract...depend on large views in the concrete.”<sup>31</sup> Synoptic, meaning ‘seen together,’ implies simultaneity, but also suggests the situated experience, rather than an abstract or disembodied concept. Geddes ‘synoptic vision’ emphasizes the collective, civic dimension of rural and urban as complementary polarities, and is explicitly temporal – evolutionary – as well as formal. Synoptic vision is a way of seeing the city and its relationship to the region with an eye to the whole: thereby relating both open spaces (or ‘no places’) and urban spaces (or ‘good places’). As he writes:

*Despite our contemporary difficulties industrial, social, and political, there are available around us the elements of a civic uplift, and with this, of general advance to a higher plane...civic awakening and the constructive effort are fully beginning, in healthy upgrowth, capable not only of survival but of fuller cultivation also, towards varied flower and fruit flower in regional and civic literature and history, art, and science; fruit in social renewal of towns and cities, small and great. Such renewal involves ever-increasing domestic and individual well-being...art may again vitalise and orchestrate the industries, as of old. Nor is this ‘merely utopian,’ though frankly eutopian. In matters civic, as in simpler fields of science, it is from facts surveyed and interpreted that we gain our general ideas of the direction of Evolution, and even see how to further this; since from the best growths selected we may rear yet better ones.<sup>32</sup>*

Geddes optimistically relies upon his ‘frankly eutopian’ synoptic ideal, as instrumentalized through the metrics of his physical and social surveys, to bring about the evolution of synoptic utopias consisting of rural and urban districts in abrupt proximity to one another. Thus synoptic vision is the culmination of the perceptual and rational act together.

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<sup>31</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 13–15.

<sup>32</sup> Geddes, v–vi.

### *iii. Vital Budget*

Patrick Geddes asserted that in order to transcend the ills of industrial era cities, and to enable cities to evolve into humane places, another new set of metrics must be developed: ‘vital budget.’ The notion of a ‘vital budget’ is one of the key ideas presented in *Cities in Evolution*, and it provides fundamental insight into the metrics he has in mind for the progressive evolution of cities. His first use of the term appears in the introductory summary of chapter 4, *Paleotechnic and Neotechnic: The Industrial Age as Twofold*, in which Geddes reflects on dualism and Utopia. He argues that the conception of Utopia is ‘indispensable to social thought’, providing as it does the means to ‘escape’ – arguing that society must transition from money wages, which tend to dissipate energies toward individual gains at the expense of both natural and cultural qualities, to a ‘vital budget’ which facilitates “...conserving energies and organizing [the] environment towards the maintenance and evolution of life, social and individual, civic and eugenic.”<sup>33</sup>

His second use of the term is preceded by a reflection on the ‘meanness’ of the gains resulting from traditional economic efforts, contrasting actual natural resources - again, taking the example of trees<sup>34</sup> and financial credit as pertains to quality of life in the evolving, ‘aristo-democratized’ city:

*But when these fine results come to be “realized” - in the material sense as distinguished from the financial sense - what are they? What is there to show beyond the aforesaid too mean streets, mean houses, and stunted lives? Chiefly documentary claims upon other people's mean streets elsewhere, and upon their labour in the future. Debts all round rather than stores, in short, a minus wealth rather than a plus. Per contra, the neotechnic economist, beginning with his careful economisation of national resources, his care, for instance, to plant trees to replace those that are cut down, and if possible a few more, is occupied with real savings. His forest is a true Bank, one very different from Messrs Rothschild's “credit”- that is, in every ultimate issue, our own, as taxpayers.*

*Again, under the paleotechnic order the working man, misdirected as he is, like all the rest of us, by his traditional education towards money wages instead of Vital Budget, has never yet had an adequate house, seldom more than half of what might make a decent one. But as the neotechnic order comes in its skill directed by life towards life, and for life - he, the working man, as in all true cities of the past, aristo-democratised into productive citizen he will set his mind towards house building and town planning, even towards city design; and all these upon a scale to rival - nay, surpass - the past glories of history. He will demand and create noble streets of noble houses, gardens, and parks; and before long monuments, temples of his renewed ideals, surpassing those of old.<sup>35</sup>*

In chapter 6, *The Homes of the People*, Geddes elaborates his concept of ‘vital budget’ in the opening summary by situating it in relation to the conventional economic metrics that he argues it is to

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<sup>33</sup> Geddes, 60.

<sup>34</sup> Patrick Geddes, “The Valley Plan of Civilization,” *The Survey*, June 1, 1925.

<sup>35</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 69–71.

displace: "The Biological View of Economics – 'There is no Wealth but Life.' Contemporary transition from 'money wages,' through 'minimum wage,' to 'family budget,' and thence to Vital Budget."<sup>36</sup>

*Physics is thus not the only science which criticizes the traditional paleotechnic economy into its essential resultants of dissipated energies, of dust and ashes, however veiled in glittering gossamers of money statistics. Biology too has its word to say: and just as for the physicist there is no wealth save in realised and conserved energies and materials, so for the evolutionary biologist, exactly as for Ruskin before him, "there is no Wealth but Life." Is it replied, "We have all to live as best we can"? That is a characteristic phrase of pseudo-economics, which misleads capital and labour alike into its acceptance, its repetition everywhere. But taking it biologically, as normal evolutionists, resolute not to be deteriorisers, our problem is to live at the best we can, as well as we can, through our twenty-four hours a day in the first place, and for as many days as we can in the second. Our full normal expectation of life should be in advance therefore of that of the past simple industries not falling short of it, as ill housed and underfed (when not overfed) paleotechnic communities have done, and are still doing. Towards thus living out our days, certain conditions are fundamental; and first, a certain life-maintaining minimum of real wages, experimentally determined by physiologists. Their experimental results have lately been coming into application in everyday life in this country, as notably to the working folk of York, by its eminent neotect, and corresponding neoeconomist, Mr Seebohm Rowntree. His achievement has been to get definitely below the money terms of paleotechnic wages, and to define clearly for the first time, as "primary poverty," that line of real poverty, physiological poverty, below which organic efficiency cannot be maintained.*

*This stage of biological economics once reached, this concrete way acquired of looking below "wages" to budget, below "wealth" to weal, there is of course no harm, but immediate convenience and advantage, in comparing the physiologist's minimum ration – the proteids, fats, and amyloids, which the labourer and his family require, and its real and permanent statistical notation of heat and work units, "calories" – with the fluctuating money notation of the trader and his economist. For this notation will now also serve us, instead of mastering them; it can no longer go on blinding us all to the physical and physiological facts behind it. We are getting, in fact, towards our "minimum wage": yet the moment this fascinating and handy cash sum begins again to be thought of as being "for practical purposes" the goal of the workman, instead of as a mere book-keeping notation recording the details of how he may have got the said rations, then of course prices will begin to be worked up again by the commercial interest; and this until he is in deeper primary poverty than ever.<sup>37</sup>*

It is interesting that Geddes takes the extraordinary step of citing Seebohm Rowntree's book *Poverty: A Study of Town Life* as a footnote.<sup>38</sup> Indeed, it is the only reference treated this way in the entire book.

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<sup>36</sup> Geddes, 109.

<sup>37</sup> Geddes, 109–11.

<sup>38</sup> Benjamin Seebohm Rowntree, *Poverty - A Study of Town Life*, 1908th ed. (London: Macmillan, 1901), <http://archive.org/details/povertyastudyto00rown00>.

When researching *Poverty*, still considered a seminal work of empirical sociology and the first use of a poverty line in sociological research, Rowntree and his assistants studied in detail the lives of over 46,000 residents of York (over two-thirds of the population). At the time of its publication, poverty was considered largely an urban problem, particular to major cities like London, and Rowntree's survey revealed that even in a relatively small city like York, 28% of people lived in 'absolute' poverty (defined as the inability to acquire even basic necessities such as food, fuel and clothing). Given his detailed research, one could no longer claim that it was poor people's fault that they were poor, and Rowntree's research helped change attitudes towards poverty, culminating in the British Liberal reforms of 1906-1912.<sup>39</sup>

Geddes's proposal that metrics ought to evolve from 'economic budget' to 'vital budget' was clearly informed by Rowntree's own survey metrics in *Poverty*, which proceed from those associated with the former – addressing average weekly earning and expenditure, etc. – to those associated with the latter – finally addressing dietary and caloric requirements.<sup>40</sup>

#### *iv. From Metrics To Heuristics*

Let's try to deal with current urban discourses and trends, considered through the same lenses as Geddes. Some sixty years after Geddes's *Cities In Evolution*, Ivan Illich develops the idea of alternative metrics in *Energy and Equity* (1973 – incidentally first published with some fanfare in serial form on the front page of the French journal *Le Monde*, based in Paris: arguably the home of the great *flâneur* tradition), emphasizing the relation between low energy use and increased social and environmental quality: "A low energy policy allows for a wide choice of lifestyles and cultures...Participatory democracy postulates low energy technology."<sup>41</sup> Conversely, he states, "I argue that beyond a certain median per capita energy level, the political system and cultural context of any society must decay."<sup>42</sup>

Echoing Geddes's proposal for a 'vital budget,' he frames his argument according to energy use, "A people can be just as dangerously overpowered by the wattage of its tools as by the caloric content of its foods, but it is much harder to confess to a national overindulgence in wattage than to a sickening diet."<sup>43</sup> As Geddes emphasized how a 'vital budget' could address poverty and *social mobility*, Illich emphasizes how a 'time budget' can be used to improve *physical mobility* – arguing that cities prioritizing motorized transit, uncritically regarded as advantageous, have been conceived of as too one-sided, overemphasizing speed: "Once some public utility went faster than 15 mph, equity declined

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<sup>39</sup> Edmund Fawcett, *Liberalism: The Life of an Idea* (Princeton: Princeton University Press, 2014).

<sup>40</sup> Rowntree, *Poverty - A Study of Town Life*, 27.

<sup>41</sup> Ivan Illich, *Energy and Equity* (New York: Harper & Row, 1974), 4.

<sup>42</sup> Illich, 6.

<sup>43</sup> Illich, 7–8.

and the scarcity of both time and space increased. Motorized transportation monopolized traffic and blocked self-powered transit.”<sup>44</sup>

Expanding on the industrialization of traffic, he writes: “Enforced dependence on auto-mobile machines then denies a community of self-propelled people just those values supposedly procured by improved transportation.”<sup>45</sup> Illich then elaborates the practical implications of this idea of a ‘time budget’, pointing out that model Americans put in 1,600 hours to get 7,500 miles: less than five miles per hour. “In countries deprived of a transportation industry, people manage to do the same, walking wherever they want to go, and they allocate only three to eight per cent of their society’s *time budget* to traffic instead of 28 per cent.”<sup>46</sup> “It is vital that he come to see that the acceleration he demands is self-defeating, and that it must result in a further decline of equity, leisure and autonomy.”<sup>47</sup> Illich emphatically argues that public transit alone is not the solution:

*Imagine what would happen if the transportation industry could somehow distribute its output more adequately: a traffic Utopia of free rapid transportation for all would inevitably lead to a further expansion of traffic’s domain over human life. What could such a Utopia look like? Traffic would be organized exclusively around public transportation systems. It would be financed by a progressive tax calculated on income and on the proximity of one’s residence to the next terminal and to the job. It would be designed so that everybody could occupy any seat on a first come, first-served basis: the doctor, the vacationer and the President would not be assigned any priority of person. In this fool’s paradise, all passengers would be equal, but they would be just as equally captive consumers of transport. Each citizen of a motorized Utopia would be deprived of the use of his feet and drafted into the servitude of proliferating networks of transportation.*<sup>48</sup>

The essence of his argument is a statement that is memorable and evocative: “High speed is the critical factor which makes transportation socially destructive. A true choice among political systems and of desirable social relations is possible only where speed is restrained.”<sup>49</sup> As with the metric of speed, other conventional metrics are demonstrably, and often radically, decontextualized. Gross Domestic Product (GDP), for example, measures net outcomes of unaccounted for ‘resource exchanges’ between nations, while financial industries ‘externalize’ risks, effectively institutionalizing risk, monitoring and cultivating certain risks over others.<sup>50</sup> As was briefly mentioned elsewhere, the insurance and legal industries corroborate such cultivation of risk by attributing the term *force majeure* or

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<sup>44</sup> Illich, 11.

<sup>45</sup> Illich, 16.

<sup>46</sup> Illich, 19.

<sup>47</sup> Illich, 26.

<sup>48</sup> Illich, 48.

<sup>49</sup> Illich, 12.

<sup>50</sup> Robert Constanza, *Beyond GDP: The Need for New Measures of Progress* (Cambridge, MA: Boston University, 2009).

‘acts of God’ to human induced crises, such as earthquakes and landslides – faith is, in this way, used as a pretense by which to further externalize culpability.<sup>51</sup>

In contrast to the propensity for high-risk abstraction inherent in such one-sided metrics, Nassim Nicholas Taleb forwards the use of heuristics. Heuristics are relational, even analogical – *analogy* coming from the Greek for ‘proportion’. Taleb, formerly a career quantitative analyst, specializing in the application of mathematical and statistical methods to financial and risk management problems, writes in *Antifragile: How to live in a world we don’t understand*, “In institutional research, one can selectively report facts that confirm one’s story, without revealing facts that disprove it or don’t apply to it—so the public perception of science is biased into believing in the necessity of highly conceptualized, crisp, and purified...methods. And statistical research tends to be marred with this one-sidedness.”<sup>52</sup> He goes on, “This one-sidedness brings both underestimation of randomness and underestimation of harm, since one is more exposed to harm than benefit from error.”<sup>53</sup> “[A fundamental] heuristic is that we need to build redundancy, a margin of safety, avoiding optimization, mitigating (even removing) asymmetries in our sensitivity to risk.”<sup>54</sup>

Again, we are reminded of the practical precedent validating the heuristic value of this observation found in the ‘regeneration guidelines’ proposed by Wolfgang Sachs, et al, in *Greening the North-A Post-Industrial Blueprint for Ecology and Equity* (1998): “No more of a renewable resource should be utilized than can regenerate in the same period. Only that amount of materials should be released into the environment as can be absorbed there.” The heuristic for ‘throughput guidelines’ is similarly concise: “Throughputs of energy and materials must be reduced to a low-risk level.”<sup>55</sup>

Taleb singlehandedly recapitulates each of the themes we’ve covered from Geddes to Lévy to Illich, including his use of diagrams and heuristics, and he is the last figure we’ll consider in light of Geddes’s utopian legacy. “What I propose is a road map to modify our man-made systems to let the simple—and natural—take their course,” Taleb concludes. “Heuristics are simplified rules of thumb that make things simple and easy to implement. But their main advantage is that the user knows that they are not perfect, just expedient, and is therefore less fooled by their powers. They become dangerous when we forget that.”<sup>56</sup> There is a limit to the threshold of utility in heuristics, analogous to the limits of verbal meaning itself, in describing these phenomena – less is more, but only when more is too much. Regarding this threshold between less and more in relating metrics and heuristics, Taleb writes, “So here is something to use. The technique, a simple heuristic called the *fragility (and antifragility)*

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<sup>51</sup> Matthew Skjonsberg, “Magic, Inc.,” in *The Aesthetics of Sustainable Architecture*, ed. Sang Lee (Rotterdam: 010, 2011), 234.

<sup>52</sup> Nassim Nicholas Taleb, *Antifragile: How to Live in a World We Don’t Understand* (London: Allen Lane, 2012), 217.

<sup>53</sup> Taleb, 311.

<sup>54</sup> Taleb, 397.

<sup>55</sup> Wolfgang Sachs, et al, *Greening the North: A Post-Industrial Blueprint for Ecology and Equity*, (London: Zed Books, 1998).

<sup>56</sup> Taleb, *Antifragile*, 11.

*detection heuristic*, works as follows. Let's say you want to check whether a town is over-optimized. Say you measure that when traffic increases by ten thousand cars, travel time grows by ten minutes. But if traffic increases by ten thousand more cars, travel time now extends by an extra thirty minutes. Such acceleration of traffic time shows that traffic is fragile and you have too many cars and need to reduce traffic until the acceleration becomes mild..."<sup>57</sup>

Under the heading *Where Simple Is More Sophisticated*, Taleb writes: "A complex system, contrary to what people believe, does not require complicated systems and regulations and intricate policies. The simpler, the better."<sup>58</sup> As an example, he reflects, "I realized that there existed a simple definition of fragility, hence a straightforward and practical testing heuristic: the simpler and more obvious the discovery, the less equipped we are to figure it out by complicated methods. The key is that the significant can only be revealed through practice."<sup>59</sup> This statement points to the strength of Geddes's identification of 'synoptic vision' and 'vital budget' as significant metrics informed and qualified by first-hand experience - and the value of their *hermeneutic* interpretation as heuristics.<sup>60</sup> The strength of moving from metrics to heuristics is to learn operable, flexible, low-risk 'rules-of-thumb', as Taleb writes, "a small number of tricks, directives, and interdicts—how to live in a world we don't understand, or, rather, how to not be afraid to work with things we patently don't understand, and, more principally, in what manner we should work with these. Or, even better, how to dare to look our ignorance in the face and not be ashamed of being human...But that may require some structural changes." The first of these changes implied by the importance of first-hand experience is a renewed significance for the aesthetic dimension of design.

#### v. Aesthetics of Utopia

Paralleling utopia's contemporary connotation of naiveté, in recent times the term *aesthetics* has come to carry the connotation of being superficial, or for appearances only. The Greek root of the term, *aisthesis* (αἴσθησις), points to the cumulative effects of sensory perception and intuition, along with the logical or cognitive knowledge gained from that which is sensed. *Aisthesis* deals not only with the anatomic composition of our five sensory organs, but also with our cognitive sensibilities, which are of great significance in the evolution of our social structures, built environments and artifacts. These sensibilities in turn are shaped by the experience of one's environment – largely the 'second nature' environment we inhabit through physical infrastructures and social institutions, which themselves exert a reciprocal influence on the development of our sensibilities. Over time, these exchanges – based in direct bodily perception – come to define our very attitudes toward life. In short, sensibilities inform

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<sup>57</sup> Taleb, 310.

<sup>58</sup> Taleb, 11.

<sup>59</sup> Taleb, 208.

<sup>60</sup> Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (London: Academy Editions, 1980).

our ethics: our expectations of propriety, integrity, wellbeing and justice.<sup>61</sup> As Geddes wrote, “The beauty of cities is of no mere sentimental interest: the aesthetic factor is recognised in war, in medicine, as at once a symptom of efficiency and health, and an aid to them.”<sup>62</sup>

Jacques Lévy’s proposal for *virtuality* has an affinity with Geddes’s synoptic vision, sharing a similar concern for the first-hand experience of contextual plurality, but through walking, not only through seeing – thus broadening the aesthetic experience.<sup>63</sup> Lévy relates this to the idea of ‘contextual speed’, noting a shift in urban attitudes towards pedestrianism, asserting that formerly walking was considered less dignified than to be transported by mechanical, animal or water power, whereas now walking has regained a kind of prestige.<sup>64</sup> This isn’t the first time pedestrianism has been ‘rediscovered’; one need only consider the 19th century image of the urban *flâneur*. Indeed, both then and now the renewed appreciation of the act of walking has been related to an acknowledgment of urban qualities and the pleasures obtained by taking the time to observe one’s surroundings – as well as those attendant to the parallel activity of people-watching, an activity that satisfies a primal social drive. Of course, walking in nature as an activity facilitating well-being through reflection, even meditation, has been long acknowledged in many cultures and philosophies. It takes a particular form as *nature study* in the ruralism of Bailey, Olmsted, Geddes and Wright.<sup>65</sup>

Lévy’s notion of *virtuality*, the desirability of which has to do with the ability to choose between a known variety of experiences and spaces accessible within a certain proximity – is a concept also closely related to Taleb’s notion of *optionality*, which he states is derived from Aristotle, as he describes, “This ability to switch from a course of action is an option to change...at the core, an option is what...allows you to benefit from the positive side of uncertainty, without a corresponding serious harm from the negative side.”<sup>66</sup> He also makes the explicit connection with the *flâneur*, which he defines as “...someone who...makes a decision opportunistically at every step to revise his schedule (or his destination)...being a flâneur is...‘looking for optionality.’”<sup>67</sup> Expanding on this, he relates the ‘rational flâneur’ to ‘rational optionality’ which he defines as, “Not being locked into a given program, so one can change his mind as he goes along based on discovery or new information.”<sup>68</sup>

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<sup>61</sup> Skjonsberg, “Magic, Inc.,” 227.

<sup>62</sup> Geddes, *Cities In Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*, 84.

<sup>63</sup> Jacques Lévy, *Le Tournant Géographique* (Paris: Berlin, 1999), n. First use in English: Lévy, Jacques; (2001) ‘Governing the City,’ in Change and Stability in Urban Europe: Form, Quality, and Governance, Andersson, al., Farnham: Ashgate, Urban and Regional Planning and Development, p. 231–248.

<sup>64</sup> Retaille, Jacques Lévy, and Michel Lussault, *Dictionnaire de la géographie* (Paris: Belin, 2003); J. Lévy, *The City: Critical Essays in Human Geography* (Ashgate, 2008).

<sup>65</sup> See for example: Frank Lloyd Wright, “The Art and Craft of the Machine,” in *Brush and Pencil*, ed. Charles Francis Browne and Frederick William Morton, vol. 8 (Chicago: Phillips & Company, 1901), 89; Liberty Hyde Bailey, *The Nature-Study Idea: Being an Interpretation of the New School-Movement to Put the Child in Sympathy with Nature* (Norwood, Mass.: Doubleday, Page, 1903).

<sup>66</sup> Taleb, *Antifragile*, 189.

<sup>67</sup> Taleb, 440.

<sup>68</sup> Taleb, 444.

Geddes, like Taleb, often developed heuristics, rules-of-thumb which characterized a principle, and his heuristic dictum ‘survey then plan’ was among his most famous. Again, it is worth emphasizing that for Geddes a complete survey was both geographical and social. Such contextual knowledge, enhanced by first-hand aesthetic experience, thus fundamentally enhances optionality. When complemented with modes of mobility at ‘speeds that matter’ it promotes individual and community well-being and enjoyment, directly contributing to the evolution of more humane, more frankly utopian, cities.<sup>69</sup> Further verification of this can be seen in two recent characterizations of individual modes of mobility. One of these is ‘soft mobility,’ which is generally associated with ecological corridors and wildlife habitats, the other is ‘active mobility,’ which emphasizes human health and safety. Both ‘soft mobility’ and ‘active mobility’ focus on replacing motorized, carbon-dependent modes of mobility with individual physical activity, whether walking or cycling, as a means of accessing everyday destinations. The correlation echoes Geddes’s statement championing the ‘value of opportunities of activity for youth, and for citizenship.’ It is interesting that this tendency is consistent with contemporary research that demonstrates a strong correlation between economic wealth and the presence of trees in urban areas.<sup>70</sup> Indeed, the metrics of active and soft mobility – ‘abrupt’ spaces relating rural and urban areas while providing for first-hand aesthetic experiences that enhance well-being – are proving to be rather utopian. As Illich wrote, in a statement apropos of a genuinely utopian ideal, “Participatory democracy demands low energy technology, and free people must travel the road to productive social relations at the speed of a bicycle.”<sup>71</sup>

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<sup>69</sup> Lévy, *The City: Critical Essays in Human Geography*.

<sup>70</sup> Tim De Chant, “Income Inequality, As Seen From Space,” Per Square Mile, 2012, [persquaremile.com/2012/05/24/income-inequality-seen-from-space/](http://persquaremile.com/2012/05/24/income-inequality-seen-from-space/).

<sup>71</sup> Illich, *Energy and Equity*, 12.





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### *Sources*

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- BHM – Buffalo History Museum Research Library  
BPL – Boston Public Library, Norman B. Leventhal Map Center  
BRL – Birkenhead Reference Library  
BUX – Buxton Museum  
CCA – Canadian Center for Architecture  
CHG – Catena Historic Gardens and Landscape Archive, Bard Graduate Center  
CPL – Chicago Public Library Archive  
DAEL – Département de l'aménagement, de l'équipement et du logement, Etat de Genève  
FLLW – Frank Lloyd Wright Foundation Archives, Columbia University/Museum of Modern Art  
FLO – Frederick Law Olmsted National Archives  
JDS – The Center for John Dewey Studies, Southern Illinois University Carbondale  
JJA – Jens Jensen Archive, University of Michigan-Ann Arbor  
KCP – Kansas City Parks Archive  
KSW – Klassik Stiftung Weimar  
LOC – Library of Congress, Washington D.C.  
LWA – Lloyd Wright Archive, University of California-Los Angeles  
MLM – The Morgan Library and Museum  
MMA – Metropolitan Museum of Art  
NCP – National Capital Park and Planning Commission  
NLA – National Library of Australia  
NYPL – New York Public Library Archive  
PGS – Patrick Geddes Archive, Strathclyde University-Glasgow  
PGE – Patrick Geddes Papers, University of Edinburgh  
RHM – Riverside Historical Museum  
WHM – Warren H. Manning Papers, Iowa State University  
WSHS – Wisconsin State Historical Society, University of Wisconsin-Madison

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Matthew Skjonsberg  
matthew.skjonsberg@epfl.ch  
m+41 76 627 7282  
Rue Couchirard 7  
Lausanne - CH 1004  
Switzerland



#### E d u c a t i o n

ETH-Lausanne (Swiss Federal Institute of Technology), PhD 'Civic Design and Park Systems', Mar 2013–Dec 2017  
ETH-Zurich (Swiss Federal Institute of Technology), Master of Advanced Studies in Urban Design, Aug 2006–Aug 2007  
Taliesin / Frank Lloyd Wright School of Architecture, Bachelor of Arch. Studies, Dec 1997–Sept 2001  
University of Wisconsin - Eau Claire, studies in music, art, and mathematics, 1992-93

#### P r o f e s s i o n a l   E x p e r i e n c e

|                    |  |
|--------------------|--|
| Sept.-Nov.2017     | Wageningen University and Research – Faculty (co-teaching w/ Prof. Adriaan Geuze)                |
| Oct.2015-Oct.2017  | Museum of Modern Art, New York – Guest Curator   |
| Oct.2014-Nov.2016  | United Nations, HABITAT III, New York University-Institute for Public Knowledge – Faculty        |
| June-August 2014   | We Are City, Indiana University Center for Art + Design – Artist in Residence                    |
| Mar.2013–Oct.2017  | Swiss Federal Institute of Technology-Lausanne, Laboratory of Urbanism – Faculty                 |
| Jan.2012-2015      | Taliesin, the Frank Lloyd Wright School of Architecture – Adjunct Faculty                        |
| Jan-Apr.2012       | Rotterdamse Academie van Bouwkunst – Landscape and Urban Design Faculty                          |
| June 2009-Feb.2013 | Skatepark Systems, San Diego, CA – Architect, Co-founder   |
| Dec.2007-June 2012 | West 8 urban design and landscape architecture, New York / Rotterdam – Project Leader            |
| Jan.-Sept.2006     | University of Wisconsin-Stout Polytechnic – Building Sciences Faculty                            |
| Jan.2005-May 2009  | Artifex Parkscapes, San Diego, CA – Architect, Co-founder  |
| Jan.2002-Dec.2006  | Taliesin / Frank Lloyd Wright School of Architecture, Faculty (co-teaching w/ Phil Lewis, FASLA) |
| Oct.2001-Jan.2005  | Erdman Academy for Sustainable Design, Assistant to Phil Lewis, FASLA                            |
| Sept.2001-present  | collab architecture llc – Architect, Co-founder  |
| Dec.1999-July 2003 | Tureck Bach Research Institute, Oxford University – Assistant to Dr. Rosalyn Tureck              |
| Dec.1997-Sept.2001 | Taliesin Architects, Spring Green, WI/Phoenix, AZ – Intern Architect                             |

#### M e m b e r s h i p s   a n d   S e l e c t e d   P r o f e s s i o n a l   A c t i v i t i e s

Licensed Architect, State of Wisconsin, USA – credential #10242-005 (2005-present)  
National Council of Architectural Registration Boards, NCARB Certification (2003)  
American Institute of Architects, New York Chapter (2008-present)  
Theatrum Mundi Stage and Street Collective, Richard Sennett, Dir. (2012-present)  
GreenHomeNYC, Partner-In-Practice and Advisory Board Member (2008-present)  
Alliance for Global Sustainability (MIT/ETH/Univ.Tokyo), YES Institute Alumnus, Zurich, Switzerland (2007)  
Professional Musician, 1993-97, studio drummer, including international tours and solo work  
Sponsored Amateur Skateboarder, 1989-93, including international tours and competitions, subsequently team manager

#### S e l e c t e d   A w a r d s

The American Society of Landscape Architects, New York Chapter, Honor Award, 2015 (Governors Island - w/West 8)  
The American Society of Landscape Architects, Florida Chapter, Honor Award, 2015 (Miami Beach soundscape - w/West 8)  
Harvard University, Veronica Rudge Green Prize in Urban Design, 2015 (Madrid RIO – w/West 8)  
National Civic League, All America City Award, 2014 (Labyrinth Amphitheater)  
Nationale Renovation Platform, Dutch Golden Phoenix Award, 2013 (Eindhoven Strijp S – w/West 8)

### *Selected Awards, continued*

- The Chicago Athenaeum, International Architecture Award, 2012 (Madrid RIO - w/West 8)  
The American Institute of Architects, Institute National Honor Award, 2012 (Miami Beach Soundscape - w/West 8)  
The American Society of Landscape Architects, National Honor Award, 2012 (Governors Island - w/West 8)  
American Society of Landscape Architects, National Professional Award, 2012 (*Landscape Infrastructure*, Birkhauser)  
British Association of Landscape Industries, National Landscape Award, 2012 (Jubilee Gardens – w/West 8)  
National Council of Structural Engineers, Excellence in Structural Design, 2012 (Miami Beach Soundscape - w/West 8)  
Foment de les Arts i del Disseny, Fostering Arts and Design in City and Landscape, 2012 (Madrid RIO – w/West 8)  
Cultural Landscape Foundation, Most Notable Landscape Architecture Project, 2011 (Miami Beach Soundscape - w/West 8)  
The American Institute of Architects - Florida Chapter, Award of Excellence, 2011 (Miami Beach Soundscape - w/West 8)  
National Geographic Magazine - *Top Ten Everything for Families*, Top Ten Skateparks, 2008 (Alamosa Park)  
American Society of Landscape Architects, Wisconsin Chapter, Award for Design Excellence, 2008 (Labyrinth Amphitheater)  
Wisconsin Department of Parks and Recreation, Park Design Award of Excellence, 2007 (Labyrinth Amphitheater)  
Southwest Concrete Association, Best of 2007 Concrete Award (Alamosa Park)

### *Selected Projects*

#### *West 8 New York / Rotterdam (\*built/being built, ^project leader)*

- Yongsan Central Park (w/ Iroje), invited design competition-winner, Seoul, South Korea 2012-ongoing\*^  
Eurojust Headquarters (w/ Benthem Crouwel), invited design competition finalist, The Hague, The Netherlands 2012^  
Jubilee Gardens, invited design competition-winner, London, England 2005-2012\*  
Union Station Masterplan, invited competition finalist, Los Angeles, CA USA 2012  
St. Petersburg Pier, invited design competition finalist, St. Petersburg, FL USA 2012  
Queen Elizabeth Olympic Legacy South Park (w/ Benthem Crouwel), 2<sup>nd</sup> place competition finalist, London, England 2012^  
Central Park Valencia, invited design competition finalist, Valencia, Spain 2011  
Taichung Central Park, 3<sup>rd</sup> place invited design competition, Taichung, Taiwan 2011  
Victoria & Albert Museum Expansion (w/ Jun Aoki), invited design competition finalist, London, England 2011^  
Beirut Central Waterfront, invited design competition winner, Beirut, Lebanon 2011  
Wangjing Soho Tower Park (w/ Zaha Hadid), invited design competition winner, Beijing, China 2010  
Tulsa Riverfront, invited competition finalist, Tulsa, OK USA 2010^  
'Il Paradiso Nascosto', Installation (permanent collection) MAXXI Museum Inaugural Exhibition, Rome, Italy 2010-11\*^  
Bay of Pasai Masterplan, invited design competition finalist. Pasai, Spain 2009-10  
Pier 57, invited design competition winner, New York, NY USA 2009\*^  
Soundscape Park, invited design competition winner, Miami Beach, FL USA 2009-11\*  
Centre Street Atrium, Garden and Public Spaces, New York, NY USA 2008-09\*^  
Hudson Park and Boulevard, invited design competition finalist, New York, NY USA 2008^  
Commonwealth Institute - Holland Green and London Design Museum (w/OMA), London, England 2008-\*^  
Parque Lineal de Manzanares Masterplan, Parks and Public Spaces, Madrid, Spain 2008\*  
Santa Giulia Masterplan, Parks and Public Spaces, Milano, Italy 2008  
Danube Waterfront, invited design competition-winner, Budapest, Hungary 2008^  
Playa de Palma Masterplan, Parks and Public Spaces, invited design competition-winner, Mallorca, Spain 2007\*  
Governors Island Open Space Master Plan and Design, invited design competition-winner, New York, NY USA 2007-ongoing\*^  
Happy Isles (w/ Svasek), invited design competition-winner, The Netherlands 2006-ongoing\*  
Park Strijp S, direct commission, Eindhoven, The Netherlands 2001-ongoing\*

*Selected Projects, continued*

*collab architecture (\*built)*

Alamosa Park, Albuquerque, NM 2007\*

Parallel Urbanism, Addis Ababa, Ethiopia 2007\*

Labyrinth Amphitheater Riverfront Park, Eau Claire, WI 2006\*

Thun Lakefront Development, competition winner, Thun, Switzerland 2006

IDS Industrial Design Offices, Chippewa Falls, WI 2006\*

Native Bay Restaurant, Chippewa Falls, WI 2005\*

Saliera Gallery, Hammond, WI

Mosler Insurance Offices, Menomonie, WI

Willow Residence, Menomonie, WI 2005\*

Community Action Agency Offices, Glenwood, WI 2004\*

Tunnel Studio, Minneapolis, MN 2004\*

1021 Residence, Menomonie, WI 2004\*

Winsor Residence, Eau Claire, WI 2003\*

Stelter Residence, Menomonie, WI 2003\*

Vivid Road House, Iron Mountain, MI 2003\*

East Lutheran Church (w/ Ayers Assoc.), Madison, WI (addition) 2002

Menomonie Public Library, Menomonie, WI (interior renovation) 2002\*

Becker Residence, Menomonie, WI 2002\*

collab architecture Studio, Menomonie, WI 2001\*

Habitat for Humanity House, Menomonie, WI 2001\*

*Artifex Parkscapes (\*built)*

Los Altos Park, Albuquerque, NM 2008\*

Westside Park, Albuquerque, NM 2007\*

Fort Meyer, Boulder, CO 2006\*

Andy Macdonald Signature Parks, various locations 2005\*

Black River Falls Park, Black River Falls, WI 2005\*

Teen Center Skatepark, Louisberg, PA 2004\*

*Taliesin Architects (\*built)*

William Wesley Peters Library, Taliesin West, Phoenix, AZ (renovation) 2001\*

Monona Terrace Community and Convention Center, Madison, WI 2000\*

University of Wisconsin - Lange Student Center and Athletic Facility, Baraboo, WI 1999\*

Taliesin West, Locker Facility/Conference Room, Scottsdale, AZ (renovation) 1999\*

Bartell Residence, Madison, WI 1999\*

Dewey Wright Residence /FLLW 1958, Wausau, WI (renovation) 1998\*

Taliesin, Hillside Library/Student Dormitory, Spring Green, WI (renovation) 1998\*

Frontiere Residence, Flagstaff, AZ 1998\*

S e l e c t e d E s s a y s a n d P u b l i c a t i o n s

Do It Yourself: From Individual Sovereignty to Civic Design, Unpacking the Archives: Frank Lloyd Wright at 150;  
eds. Bergdoll and Gray; New York: Museum of Modern Art, June 2017

Genius of Utopia: The Evolutionary Nature of Genius Loci, Spazio, Tempo, Utopia;  
ed. Bologna, Milano: Franco Angeli, April 2017

Toward an Open City: The Quito Papers and the New Urban Agenda, w/ Sassen, Sennett, Burdett, et al. (contributing researcher);  
eds. Decorte and Rudd; New York: New York University, April 2017

Terra Firma: The Narrative of Soils, Testing-Ground: Journal of Landscapes, Cities and Territories, vol. 1, no. 1;  
eds. Wall and Malaescu; London: University of Greenwich, April 2017

Second Nature, w/ Adriaan Geuze, *DOMES - International Review of Architecture*, vol. 14, no. 7;  
ed. Panetsos; Athens: Arvanitides, March 2016

Infrastructured Landscapes, w/ Adriaan Geuze, *Thinking City (blog)*  
ed. Perry; London: The Guardian, May 2015

TRACÉS Bulletin technique de la Suisse romande: Récit Des Sols, w/ Montgomery, and Sassen (guest editor), vol. 141. no. 1;  
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Counterpoint: The Musical Analogy, Periodicity, and Rural Urban Dynamics, Revising Green Infrastructure;  
eds. Czechowski, Hauck, Hausladen; London: Taylor & Francis / CRC Press, November 2014

Topos International Review of Landscape Architecture and Urban Design: The Narrative of Landscape (guest editor), no. 88;  
ed. Schaefer; Munich: Callwey, October 2014

The Narrative of Soils, Topos International Review of Landscape Architecture and Urban Design, no. 88;  
ed. Schaefer; Munich: Callwey, October 2014

On Earth, w/ Jonathan Ledgard, *Topos International Review of Landscape Architecture and Urban Design*, no. 88;  
ed. Schaefer; Munich: Callwey, October 2014

Waking Leviathan: Frank Lloyd Wright's Rural Urban Ideal, Flowscape: Designing Infrastructure as Landscape, RiUS vol. 3;  
eds. Nijhuis, Jauslin, van der Hoven; Delft: University of Technology Delft, September 2014

Design Analysis - Contextual Architecture with Landscape Methods, w/ D. Jauslin, F. Curiel  
Landscape: A Place of Cultivation - Conference Proceedings ECLAS - European Council of Landscape Architecture Schools;  
eds. Da Silva, Marques, Andrade; London: Taylor & Francis, September 2014.

*Selected Essays and Publications, continued*

Design Analysis – Contextual Architecture with Landscape Methods, w/ D. Jauslin, F. Curiel

*Consilience and Innovation in Design - Conference Proceedings LASDR – International Association of Societies of Design Research*; ed. Sugiyama; Tokyo: Shibaura Institute of Technology, August 2013

Hidden Rivers: Addis Ababa's Rural/Urban Metabolism, *SUR-Sustainable Urban Regeneration Magazine*, vol. 32, no.3; ed. Shima, Kidokoro; Tokyo: Center for Sustainable Urbanism, University of Tokyo, March 2013

Performative Corridors, Swahili Coast - Rapid Urban Transformation;

eds. Couling, Skjonsberg; Basel: EPFL- Laboratory Basel, March 2013

*Swahili Coast - Rapid Urban Transformation* (editor + contributing author)

eds. Couling, Skjonsberg; Basel: EPFL- Laboratory Basel, March 2013

Dancing with Entropy, w/ Adriaan Geuze, *AD-Architectural Design Magazine*, no. 219:

ed. Eisenschmidt; London: Wiley, September 2012

*Cadavre Exquis: Architecture with Landscape Methods*, w/ Daniel Jauslin;

eds. Jauslin, Skjonsberg; Rotterdam: Rotterdamse Academie van Bouwkunst, July 2012

The Interoperative, w/ Adriaan Geuze; *OZ Journal of Architecture, Planning and Design*, vol. 34;

eds. Robinson, Steadman; Manhattan: Faculty of Architecture, University of Kansas, June 2012

Interpretation vs. Exploitation, *Atlantis-Journal of Architecture and Urban Design, Urban Landscape*, vol. 22 no.4;

ed. Nijveldt; Delft: Faculty of Architecture, TU Delft, April 2012

Magic Inc., Aesthetics of Sustainable Architecture

ed. Sang Lee; Rotterdam: 010 Publishers, June 2011

The Stolen Paradise, Nature 02: West 8

ed. Alessandro d'Onofrio; Rome: MAXXI Press, May 2011

Second Nature – New Territories for the Exiled w/ Adriaan Geuze; *Landscape Infrastructure*;

eds. Hung, Aquino; Basel: Birkhauser August 2010

Advancing Contemporary Practice w/ Adriaan Geuze; *Harvard Design Magazine*, no. 33;

ed. Sigler; Cambridge: Harvard University Press, August 2010

Second Nature w/ Adriaan Geuze; *Topos International Review of Landscape Architecture and Urban Design*, no. 71;

ed. Schaefer; Munich: Callwey Verlag, June 2010

*Cities of Change: Addis Ababa* (contributing researcher)

eds. Angélil, Hebel; Basel: Birkhauser, January 2010

Parallel Urbanism, w/N.Kawagishi, S.Fuscaldo, *Cities of Change: Addis Ababa*;

eds. Angélil, Hebel; Basel: Birkhauser, January 2010

*S e l e c t e d E s s a y s a n d P u b l i c a t i o n s , c o n t i n u e d*  
*SPACE: From MAXXI's Collection of Art and Architecture* (works featured)  
ed. Dardi; Milan: Electa, March 2010

*Leviathan – The Agrarian-Urban Ideal, Usonia: Building Community*  
ed. Reisley; New York: Manhattanville College Press, June 2009

*Reasons To Love New York: Because Times Square Will Never Be Finished*, by Ariel Levy, *New York Magazine* (works featured);  
ed. Moss; New York: New York Media, December 2009

*Explorations In Architecture – Teaching Design Research: 11th Architecture Biennale, Venice, Swiss Catalogue* (works featured);  
eds. Staub, Geiser; Basel: Birkhäuser, August 2008

*Architectural Graphic Standards 11th Edition: Alamosa skatepark case study* (works featured);  
eds. Ramsey, Sleeper; New Jersey: J.Wiley + Sons, April 2007

*Learning From Addis – Addis Ababa's Informal Urbanism*, w/ Marc Angélil, Jörg Stollmann, et al. (editor + contributing author);  
ed. Skjonsberg, Stollmann; Zurich: ETH-DArch ISB, NSL Network City and Landscape, October 2007

*Skating Free*, by Amanda Kolson Hurley, *Architect Magazine – Journal of the American Institute of Architects* (works featured);  
ed. O'Brien; Washington DC: Hanley Wood, September 2007

*INTERACTION: The Journal of the Tureck Bach Research Institute*, vol. 3 (assistant editor);  
eds. Tureck, Skjonsberg; Oxford: Oxford University Press, October 2001

*The New School of the Middle West: Frank Lloyd Wright's Rude Society*, Thrasher Magazine, no. 184;  
ed. Phelps; San Francisco: High Speed Publications, June 1996

**S e l e c t e d C o n f e r e n c e s / E x h i b i t i o n s / W o r k s h o p s / L e c t u r e s**  
*Unpacking with Archives: Frank Lloyd Wright at 150* (exhibition + workshops, guest curator)  
Museum of Modern Art New York, June 12-Oct 1, 2017

*Pointing at the Moon: the Civic Dimension of Exhibitions* (lecture)  
Trustee Committee on Education, Department of Education, Museum of Modern Art New York, Sept 14, 2016

*The Civic Design: Park Systems and Public Space* (lecture)  
The New School for Social Research/Parsons School of Design, Tishman Auditorium, September 15, 2016

Islands, Atolls and Archipelagos of Lake Lugano, Summer School (lecture, panelist, juror)  
Lucerne University of Applied Sciences and Arts Chinese Culture University Taipei, City of Agno, September 5-11, 2016

*Horizontal Metropolis: A Radical Project* (exhibition + workshops, w/ Laboratory of Urbanism)  
La Biennale de Venezia - 15th International Architecture Exhibition, Isola Della Certosa, May 28-Nov 27, 2016

*Select ed Conferences / Exhibitions / Workshops / Lectures, cont'd*  
*Horizontal Metropolis: A Radical Project* (exhibition + workshops, w/ Laboratory of Urbanism)  
La Biennale de Lugano – 1<sup>st</sup> International Architecture Exhibition, Villa Saroli, April 28-May 25, 2016

*Live Matter: The Research of Rosetta Sarah Elkin* (exhibition, curator)  
Swiss Federal Institute of Technology-Lausanne, Archizoom Gallery, April 12-May 21, 2016

*UN-HABITAT III - Design of the Public Realm* (workshop, w/ Sassen, Sennett, Burdett, et al.)  
The New Charter of Athens, London School of Economics, UK, December 4, 2015

*Systems and Frank Lloyd Wright* (lecture, w/ Barry Bergdoll)  
Projects and Critical Reception on an International Stage, Columbia University, New York, USA, October 26, 2015

*UN-HABITAT III - Informativity* (workshop, w/ Sassen, Sennett, Burdett, et al.)  
The New Charter of Athens, MIT-Center For Advanced Urbanism, Cambridge, USA, October 22, 2015

*Metrics of Utopia: Optionality, Mobility, and Patrick Geddes's Ideal of Synoptic Utopias* (lecture)  
Horizontal Metropolis: A Radical Project, Swiss Federal Institute of Technology-Lausanne, October 13, 2015

*Horizontal Metropolis: A Transcultural Tradition* (exhibition, w/ Laboratory of Urbanism)  
Swiss Federal Institute of Technology-Lausanne, October 12-Dec 12, 2015

*Horizontal Metropolis: A Radical Project* (conference, w/ Laboratory of Urbanism)  
Swiss Federal Institute of Technology-Lausanne, October 12-14, 2015

*UN-HABITAT III - Democracy and Climate Change* (workshop, w/ Sassen, Sennett, Burdett, et al.)  
The New Charter of Athens, NYU-Institute For Public Knowledge, New York, USA, October 10, 2015

*Genius Loci: the Renaissance of a Historical City Center* (workshop, w/ Beccaria, Bologna, Gavello, et al.)  
Architecture Summer School 2015, Gassino-Torinese, Italy, July 20 - August 1, 2015

*Rethinking Urban Space in a World Without Cars* (w/ Farzaneh Bahrami)  
Lyon Public Library - Public Conference, Lyon, France, April 29, 2015

*The Charter of Elements* (lecture, w/ Isabella Pasqualini)  
Visualizing Future Cities: Venice as a Prototype, Swiss Federal Institute of Technology-Lausanne, March 18, 2015

*Waking Leviathan* (lecture)  
Flowscapes: Infrastructure as Landscape, TU Delft, The Netherlands, January 12, 2014

*The New Charter of Athens: Democracy and Climate Change* (lecture)  
NYU Institute for Public Knowledge, The New Charter of Athens Workshop, New York, October 10, 2014

*The Narrative of Landscape* (conference + exhibition, curator)  
The Narrative of Landscape Symposium, Rolex Learning Center, Swiss Federal Institute of Technology- Lausanne, October 7-9, 2014

*Selective Conference / Exchange / Workshops / Lectures, cont'd*

COUNTERPOINT: *Broadacre City in Context* (lecture, w/ Catherine Maumi and Sébastien Marot)

Superstudio Seminar 1: Broadacre City, Swiss Federal Institute of Technology-Lausanne, October 1, 2014

*The Narrative of Soils* (lecture)

Territori Nella Crisi: a fronte dei mutamenti istituzionali ed economici, Politecnico di Torino, Italy, September 6, 2014

*We Are City* (group exhibition, w/ Oliver Blank, Jace Clayton, William Zoe FitzGerald, James A. Reeves, Rocio Salceda)

EXPORT Exhibition, Indiana University Center for Art + Design (IUPCA+D), Columbus, Indiana, Sept 5-October 1, 2014

*Skateboarding and the City* (lecture)

We Are City – SUMMIT Conference, Indianapolis Museum of Art, Indiana, August 21, 2014.

*Park Systems and Skate Parkways* (lecture)

Cole Noble Gallery, Indianapolis, Indiana, August 12, 2014

*Alphaomega: The Work of Matthew Skjonsberg* (exhibition)

Cole Noble Gallery, Indianapolis, Indiana, August 1-31, 2014

*Urban Landscapes: Programming, Design, and Evaluation Techniques* (lecture)

University of Liechtenstein, Vaduz, Liechtenstein, March 10, 2014.

*Deus Ex Machina: Confronting Technological Determinism* (lecture)

Seeing the City, NYU Institute of Public Knowledge, New York, USA, March 7, 2014

*Contrapuntal Thinking* (lecture)

Music and Architecture: Ornament and Improvisation, Theatrum Mundi/London School of Economics, January 29, 2014

*Ununiverse* (installation, exhibition w/ Niels Muelman)

Unruly Gallery, Amsterdam, The Netherlands – curator Adele Renault, December 2013

*The Dangerous Illusion of Self-Sufficiency* (lecture)

Institute for Public Knowledge, New York University – Prof. Richard Sennett, November 2013

*INDESEM: 50th anniversary International Design Seminar* (lecture, panelist, studio tutor)

TU Delft, The Netherlands – of this student-organized event, April 2013

*Designing Nature as Infrastructure Seminar* (lecture, panelist)

TU Munich, Germany – curators Thomas Hauck, Georg Hausladen, Daniel Czechowski, November 2012

*Relational Urbanism* (studio tutor, final juror)

Berlage Institute, The Netherlands – instructors Enriquita Llabas, Eduardo Rico, May 2012

*Serpentine Gallery Marathon; assistant to Adriaan Geuze* (lecture, panelist)

Serpentine Gallery Garden, Hyde Park, London – curator Hans Ulrich Obrist, October 2011

*Select ed Conferences / Exhibitions / Works b o p s / Lectures , cont'd*  
*Villes Archipels – Infrastructure for Communities* (lecture, panelist)  
Swiss Federal Institute of Technology-Lausanne, Rolex Learning Center - instructor Darius Karacsony, May 2011

*Nature 02: West 8* (installation, exhibition design w/ Adriaan Geuze)  
MAXXI Museum of 21<sup>st</sup> Century Art, Rome – curator Pippo Ciorra, May-September 2011

*Flatiron High And Low' group exhibition* (w/ Adriaan Geuze)  
Van Alen Institute, New York - curator Joan Ockman, October 2010

*Landscape Methods for Architecture* (lecture, panelist, studio tutor)  
Faculteit Bouwkunde, TU Delft, The Netherlands - Prof. Daniel Jauslin, September-December 2010

*Il Paradiso Nascosto – The Stolen Paradise* (installation, exhibition design w/ Adriaan Geuze)  
MAXXI Museum of 21<sup>st</sup> Century Art, Rome - curator Pippo Ciorra, May-September 2010

*Japanese Junction: Performative Corridors: New Pastoral Urbanism'* (film screening, exhibition and catalogue)  
Nanyodo N+ Gallery, Tokyo, Japan, September 2010

*Beauty + Brains' Landscape Art Symposium* (lecture, panelist)  
Oerol Festival, Terschelling Island, The Netherlands, June 2010

*How Do YOU Landscape?' Symposium* (keynote speaker, panelist)  
Faculteit Bouwkunde – TU Delft, The Netherlands, March 2010

*'Contemplating the Void' group exhibition* (installation artist w/ Adriaan Geuze)  
Guggenheim Museum, New York City - curator David van der Leer, February-April 2010

*'Stranger Than Fiction: Welcome to Los Angeles'*, Expert Workshop (lecture, panelist)  
Berlage Institute, Rotterdam – instructor Christophe Cornubert, February 2010

*A Child of the Sun - Florida Southern College* (film screening, lecture, panelist)  
American Institute of Architects, Westchester Chapter - Pelham Picturehouse, Pelham, NY June 2009

*Frank Lloyd Wright - From Within Outward* (assistant to Adriaan Geuze, keynote speaker/panelist; exhibition consultant to Taliesin School of Architecture, and to Diller Scofidio + Renfro, exhibition co-designers) Guggenheim Museum, New York City, May 2009

*Broadacre City: Usonia – The Ideal City* (lecture, panelist, exhibition consultant)  
Manhattanville College, Purchase, NY May 2009

*Big Green Projects - Infrastructure for Sustainability' Symposium* (lecture, panelist)  
Green Home NYC, New York City, September 2009

*Leviathan: The Agrarian-Urban Metabolism* (lecture)  
Department of Architecture, University of Texas at Arlington, September 2009

*Select ed Conferences / Exhibitions / Works b o p s / Lectures, cont'd*  
*Green Home NYC, 9<sup>th</sup> Annual Conference* (lecture, panelist)  
CENY Showroom, New York City, January 2009

*Material Geographies' seminar and workshop* (lecture)  
Harvard Graduate School of Design, Cambridge – Asst. Prof. Felipe Correa, December 2008

American Society of Landscape Architects 'Representation' Symposia (lecture, panelist)  
AIA Center for Architecture, New York City, November 2008

*Performative Corridors: New Pastoral Urbanism* (exhibition and catalogue)  
La Biennale de Venezia - 11th International Architecture Exhibition - director Aaron Betsky, September-November 2008

'Re-Thinking the All-Inclusive' expert workshop (lecture)  
Berlage Institute, Rotterdam –instructor Olaf Gipser, May 2008

'Learning From Addis' (exhibition and catalogue)  
Futures of Cities: Impacts+Indicators, 51<sup>st</sup> Annual IFHP Congress, Copenhagen, September 2007

