Embedded Autonomies  
Projecting an American Middle-Class Polis

by David Birge

Masters of Architecture  
North Carolina State University, 2009

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Embedded Autonomies
Projecting an American Middle-Class Polis

MIT SMArchS Thesis
Architecture and Urbanism

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Embedded Autonomies

*Projecting an American Middle-Class Polis*

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Submitted to the Department of Architecture on May 21st, 2015 in Partial Fulfillment of the Requirements for the degree of Master of Science in Architecture Studies.

**Abstract**

What possible response to the last forty years of depressed wages can the American middle-class have? Along with long established tactics on the consumption side of the production equation -- namely collective housing and collective purchasing -- a new form of economic autonomy is emerging from within the very tool-kit of Neoliberalism. Due to its vastly smaller scale and increased productivity, minimal environmental impact, and rapidly decreasing costs, automation technologies provide opportunity for collective ownership of joint factories. Here, the vast array of skilled middle-class workers can converge to share a base system of advanced production, consequently renewing their economic competitiveness.

While individually the three forms of collective action might only require a diffuse spatialization, or no collocation whatsoever, the combination of all three collective strategies within the same spatial container suggests a potentially new form of living, one which goes beyond the simple abutting of live/work spaces, to the definition of a total life-world. To mediate this complexity I have appropriated a subtle archi-tectonic device, the plenum, as the infrastructure that simultaneously buffers and connects the two typically disparate worlds of material work and social re-production. The plenum does this by providing a flexible super-structure for services, people, and material to pass through, for program to attach to and utilize for its own specificity, and as a zone of mediation which allows spaces of industry and living to collide.

With the collective control over these new spaces of both simple reproduction and extended production, founded on the appropriation of advanced forms of automated production, my thesis proposes the return to older modes of communal living and resilience through co-production and co-habitation, and hence the rebirth of the collective life-world. This design project is a first step in envisioning a new, American middle-class polis, defined here as the prior definition of a social and political form of existence. It harkens back to the very origin of the American mythology of self-sufficiency, to the Mayflower Compact, which set up a self-governance which understood that this self-sufficiency was not possible at the scale of the individual, but only at the scale of the community.
Acknowledgments

First, I’d like to thank the following faculty for being pivotal in my education here at MIT: Lorena Bello, Michael Dennis, John Fernandez, Alexander D’Hooghe, and Alan Berger. Thank you also to Neil Brenner and Pan Michalatos at the GSD for their critical contributions.

To Timothy Hyde, thank you for your acute insight into what was most important in my thesis.

To Miho, thank you for your support during moments of doubt and frustration, which went beyond your duties as an academic advisor. But most importantly, thank you for your point of view on design and your teaching method. This allowed me to progress my own thinking well beyond where it was when I arrived, in ways I did not anticipate, and am deeply grateful for.

To the SMArchS Urbs. I will visit. I promise. To Gabe, Agu, Che, and George, thanks for your support and for being a mini-family for the last few months.

To my family, thanks for your understanding when it came to crunch time, and for providing moments to get away. Nothing makes you forget school like playing baseball with a 2 and 4 year old. One day Alex and Nathaniel, when you are at MIT, you will understand why it didn’t happen more often.

Lastly, to Blanca, thank you....
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Part 1
An Economic Manifesto for The American Middle-Class
1.1. The ideology of Neoliberalism developed multiple means of attack against obstacles to its maximization of profit, especially resistance by labor seeking to appropriate their fair share of increasing productivity.

1.2. This attack resulted in 40 years of wage stagnation for the middle and lower-middle classes.

1.3. Current narratives in the United States for the solution to the middle-class problem typically revolve around two polar options: bootstrapping individualism on the one hand, and statist, European style socialism on the other.

1.4. Starting with the Plymouth Colony, and hidden within American history, lies a deeper running narrative of bottom-up collectivism and cooperatives. This narrative provides a third way out of the dualistic bind between laissez-faire capitalism and totalitarian socialism.

1.5. Obscured within the middle-class are the skills and human capital required to operate newly emerging Flexible Manufacturing Systems.

1.6. By organizing and developing three intertwined cooperatives — purchasing, housing, and production — the middle-class could develop their collective economic resilience, and thus an embedded autonomy within the current American political and economic climate of Neoliberalism. The only missing piece is the will to do so.
This philosophy knows and recognizes no purpose but the ever-increasing creation of wealth and, more secretly, its concentration in the hands of a small privileged minority; and it therefore leads to a combat by every means, including the destruction of the environment and human sacrifice, against any obstacle to the maximization of profit.

— Pierre Bourdieu
In the 1950's, 60's, and 70's, labor strikes in the United States, organized by strong unions, were capable of negotiating "fair" wages and benefits of their members. In this period there were between 200 and 450 strikes per year with more than 1000 workers involved (Figure 4). In most years it was at least 300. The result of this organized negotiation, along with government policies protecting home-grown products and labor, was the lock-step growth of American productivity and hourly compensation for the laborers involved. In short, as company profits increased, so did the worker's wages (Figure 4). The American middle-class was emerging from the Post-War era as the dominant social group, and more importantly, as the realistic dream of upward mobility attainable to those willing to work hard.

Productivity and labor compensation together continued moving steadily upward until the early 1970's, at which point compensation dipped below productivity. When Ronald Reagan took office inflation hovered around 12% and the economy was stagnating. In response Regan unleashed a series of Neoliberal strategies, tax cuts and other supply-side tactics, in attempts to re-start growth.
"Thirty years ago today, when he threatened to fire nearly 13,000 air traffic controllers unless they called off an illegal strike, Ronald Reagan not only transformed his presidency, but also shaped the world of the modern workplace. More than any other labor dispute of the past three decades, Reagan’s confrontation with the Professional Air Traffic Controllers Organization, or Patco, undermined the bargaining power of American workers and their labor unions. It also polarized our politics in ways that prevent us from addressing the root of our economic troubles: the continuing stagnation of incomes despite rising corporate profits and worker productivity."

One of the more critical decisions Reagan made was breaking the professional air-traffic controllers organization (PATCO) strike in 1981. This set a precedent for the unwinding and eventual crippling of unionism in America. It was the first of three major tactics to be deployed against labor cost over the last 30 years in the name of Neoliberalism.

The second tactic to gain labor's cooperation, as Raniero Panzieri called it, was the off-shoring of manufacturing jobs to developing nations, and specifically to China after trade normalization in the early 1990’s (Figure 2). This had a double effect. First, it gave the American corporation a leverage point against labor. If worker demands were too high, and labor too well organized, the corporation could simply shut down the factory and move operations elsewhere. Second, the flooding of the newly unemployed factory workers into the service sector increased the reserve army in non-manufacturing jobs, and hence suppressed wages for all.

The third means of combat, which we are now only beginning debate the effects of, is the complete removal of human labor from the production cycle through use of automated industrial robots. At the same moment that labor strikes in the 60’s and 70’s were causing revenue losses for corporations, these technologies were being developed. Welding is a good example of the superior performance of industrial robotics. Welding bots are cheaper than their human

---

2 This tactic was presaged by corporations at the turn of the century which moved factories from the inner-city, where labor was pooled and well organized, to the outskirts and suburbs, expressly to break unionism (see: Gordon, “Capitalist Development and the History of American Cities.”)
3 see: Berger and Economy, Making in America.
4 For example, FANUC, a Japanese robotics company, has a factory which runs 24 hours a day, where robots make other robots. It is completely unsupervised, running for 30 days at a time with no human intervention. see: http://en.wikipedia.org/wiki/Lights_out_%28manufacturing%29
5 see: http://www3.nd.edu/~manufact/MPEM_pdf_files/Ch14.pdf
American Jobs Off-shored

Figure 2: Bureau of Labor Statistics, Forrester Research

Robot Prices Relative to Labor

Figure 3: Economist.com
Robots and AI will increasingly replace routine kinds of work—even the complex routines performed by artisans, factory workers, lawyers, and accountants. There will be a labor market in the service sector for non-routine tasks that can be performed interchangeably by just about anyone—and these will not pay a living wage—and there will be some new opportunities created for complex non-routine work, but the gains at this top of the labor market will not be offset by losses in the middle and gains of terrible jobs at the bottom. I’m not sure that jobs will disappear altogether, though that seems possible, but the jobs that are left will be lower paying and less secure than those that exist now. The middle is moving to the bottom.

- Justin Reich
counterparts, while making near perfect welds, which creates stronger and safer cars, and have no health issues from the gases, heat, and intense light produced. Industrial robots have been cheaper than human labor in the West for many years, and are now beginning to compete with Chinese and Taiwanese labor.6 (Figure 3)

Automation has also entered the realms of software and machine learning, along with and vision and other sense inputs. Now our cognitive functions are being supplanted along with our physical labor. Self-driving cars will replace the nearly 1 million trucking and driving jobs in the U.S.7 IBM’s Watson is being used by doctors to help diagnosis diseases with increasing success.8 Automation of these historically highly complex and seemingly un-automatable professions could very well threaten the upper middle-classes going forward. As Robert Cannon, an Internet Law Expert explains: “Everything that can be automated will be automated... the guy who used to cut keys has been replaced by a robot. In the law office, the clerks who used to prepare discovery have been replaced by software. IBM Watson is replacing researchers by reading every report ever written anywhere. This begs the question: What can the human contribute? The short answer is that if the job is one where that question cannot be answered positively, that job is not likely to exist.”9

American Economic Productivity, Wealth Share, and Hourly Wages: 1950 to 2010


Mean Household Income of Quintiles (in 2012 $)

Figure 5: U.S. Census Bureau
1.2

The result of these three means of combat — the legal breaking of unions by Reagan, the off-shoring of labor, and the introduction of automated robots and other technologies — is that while productivity in the American economy continued to grow upwards at a consistent rate from the 1950’s till the present day, the share of this productivity in the form of hourly wages for workers in the American economy flat-lined starting in the early 1980’s. Not coincidentally, this break occurs alongside a rapid decrease in strikes from 200 to 450 a year in the 1960’s and 70’s, to 50 or less after 1990, as well as the rapid increase in wealth of the top 0.1% of American population. (Figure 4) This stagnation can also be seen in mean household incomes since the late 1960’s. There is a span from roughly 1978 to 2010 where the middle quantile of households had exactly 0% increase in household. In other words, the mean income in 1978 was identical (in real-terms) to mean income in 2010. (Figure 5)
What can the middle class do, within themselves, to gain economic ground?

What narrative currently exists in America for the middle-class?

Is this sufficient?
1.3

The fact of economic stagnation for the American middle and lower middle-class over the last three decades raises very obvious questions. First, can the government and/or corporations be expected to act in response to better the conditions of the middle-class? I would claim it is very unlikely. The lobbying apparatus in Washington ensures that no truly radical legislation passes unless there is a significant shock, such as the recent financial crisis in 2007 which Obama leveraged to pass health-care reform. Waiting for the next crisis in hopes that reform will occur is a non-starter. Furthermore, due to the constant competition and demands for increasing profits, most CEO's don't have the shareholder mandate to increase wages for jobs that not only have a reserve army, and thus many willing to take the same job at less pay, but could potentially be automated or off-shored for even lower cost.

If this is the case, then, what could the middle and lower-middle classes do within themselves to gain economic ground if they no longer have access to the tactics of organized labor and strikes? And furthermore, what is the dominant narrative given to the middle-class? What might be a typical response to the middle-class worker who wants to get ahead?
I would claim that although there is a voice on the Left for a higher minimum wage, this only concerns those at the very bottom of the economy. (ref) I’m looking for tactics which can be deployed by the broader swath of the middle and lower middle classes. In this arena, then, I would claim the dominant narrative, for both the Right and much of the Left, is essentially what Theodore Roosevelt said in the early 1900’s:

“If an American is to amount to anything he must rely upon himself, and not upon the State; he must take pride in his own work, instead of sitting idle to envy the luck of others. He must face life with resolute courage... without seeking to place on his fellow man a responsibility which is not theirs.”

The problem with this narrative is that this is precisely what Neoliberalism wants. As Lefebvre states:

“The process of accumulation shatters and subordinates whatever resists it: the limits of groupings, unmediated relations, pre-existing social structures... During the period of accumulation, the individual acquires a certain practical and theoretical autonomy. He exists. But then society abandons him. Either he participates in accumulation, or he is on his own.”

And so hidden within the veil of Americanism and the narrative of self-reliance and bootstrapping lies the seed of Neoliberal power, namely the isolation of the individual wage-laborer apart from any governmental support, and more critically, from any community or larger social support system.

This isolation began in 17th century Britain through the “enclosure

1 http://www.goodreads.com/quotes/
"If an American is to amount to anything he must rely upon himself, and not upon the State; he must take pride in his own work, instead of sitting idle to envy the luck of others. He must face life with resolute courage... without seeking to place on his fellow man a responsibility which is not theirs."

- Theodore Roosevelt

"The process of accumulation shatters and subordinates whatever resists it: the limits of groupings, unmediated relations, pre-existing social structures... During the period of accumulation, the individual acquires a certain practical and theoretical autonomy. He exists. But then society abandons him. Either he participates in accumulation, or he is on his own."

- Henri Lefebvre
acts", the period of what Marx called primitive accumulation, and which
Lefebvre is referencing. During this period, starting in 1604 and not fully
ending until 1914, the British government and local authorities began
removing access to the commons. These areas of land and pasture were
farmed in a complex pattern by the local communities, and allowed relative
self-sufficiency and autonomy of those groups. As Alice Littlefield states,
"Enclosures caused the separation of the rural agricultural workers from direct
access to land and contributed to their proletarianization, placing rural labor
at the disposal of industry." 4

The bigger problem, as it pertains to my thesis, is that enclosure not only
forced farmers into wage-labor but deconstructed a complex form of
communal life which was both the result of, and the conditions for, a self-
sufficient society. Alvara Sevilla-Buitrago describes this unraveling in the
following statement:

"The social reproduction of the community is basically oriented towards the
preservation of the regimes of relative self-subsistence and self-government
upon which communal autonomy is based.... The central constituent of
original accumulation, then, consists not only of the deprivation of the means
of production, but more broadly, it involves the wide-ranging processes
in which the independence of pre- or non-capitalist social formations is
disarticulated through the erosion of their capacity to appropriate their life
realms, to organize the social division of labor and to control the material
bases of social existence." 5

4 Alice Littlefield and Larry T. Reynolds, "The Putting-out
System: Transitional Form or Recurrent Feature of Capitalist
Production?," The Social Science Journal 27, no. 4 (1990): 359-72,
doi:10.1016/0362-3319(90)90013-A.
5 Neil J. Brenner, ed., Implosions/Explosions: Towards a Study of
"[We]... do... solemnly and mutually... covenant and combine ourselves together into a civil body politic; for our better ordering, and preservation and furtherance of the ends aforesaid; and by virtue hereof to enact, constitute, and frame, such just and equal laws, ordinances, acts, constitutions, and offices, from time to time, as shall be thought most meet and convenient for the general good of the colony; unto which we promise all due submission and obedience."

- Mayflower Compact
But there is another, deeper narrative within the American tradition which offers a way out from the isolated individualism which continues to be leveraged by corporations. This narrative starts in the very beginning of American history with the Pilgrims arriving in present day Massachusetts. While sailing over the Atlantic, the Puritans wrote the Mayflower Compact which they understood as a necessary tool for their own survival. They recognized that by banding together, and through relinquishing individual freedoms and the potential for higher private gains, they in turn received greater economic and physical resilience.

A look at the history of cooperative organizations in the United States reveals a long tradition of cooperativism. In 1752, Benjamin Franklin established the very first legal cooperative in the United States, the Contributionship for Insurance of Houses from Fire Loss in Philadelphia. Thus, one of the founding fathers that conservatives and Neoliberals like to use to defend their own policies of individualism, realized the necessity of group action and self-reliance not based on personal effort, but on intelligent cooperation with others.
Time-line of Cooperatives in America

Figure 6: Data Source: Kimberly Zeuli, Robert Cropp, and University of Wisconsin Center for Cooperatives, Cooperatives: Principles and Practices in the 21st Century (University of Wisconsin Center for Cooperatives, 2004).
American Legislation of Cooperatives

1800  1825  1850  1875  2000

1979: National Cooperative Bank
1979: HUD Below Market Interest Rate Program (BMIR)
1982: Federal Credit Union Act
1982: Capper-Volstead Act
1984: Federal Housing Acts (8% of savings)
1994: Revenue Acts

European Cooperative Society

Cooperative Bill of Rights
Of note along the time-line is a Dairy Cooperative established in Goshen, CT in the early 1800's, the first food CO-OP started in New York City in the 1820's, and a purchasing cooperative founded in the 1870’s in Riverhead, NY. (Figure

More critical to my thesis, however, is the response many Americans had to the great depression, whereby they banded together into farming and banking cooperatives to protect themselves from the shocks of capitalism and the inability of the U.S. government to resolve the on-going crisis.

Currently there are 29,000 cooperatives operating in the United States which sustain 2 million jobs, serve 233 million Americans, and have 120 million total members, or roughly 40% of the total population. There are 50,000 families engaged in cooperative day-care and preschools, while credit unions, electric cooperatives, food cooperatives, and housing cooperatives constitute the largest groups respectively.1

So not only did America start with a self-organized cooperative, Americans continued to respond to the laissez-fare environment of early industrialism as well as its crisis modes with the adoption of member owned and operated cooperative organizations.

29,000 Co-ops Currently Operating
Sustain 2 million jobs
Serve 233 million people
50,000 Families use for day-care + preschool

<table>
<thead>
<tr>
<th>Cooperative Type</th>
<th>Number of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Unions</td>
<td>84,000,000</td>
</tr>
<tr>
<td>Electric Cooperatives</td>
<td>37,000,000</td>
</tr>
<tr>
<td>Food Cooperatives</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Housing Cooperatives</td>
<td>1,500,000</td>
</tr>
</tbody>
</table>

40% of Population 120,000,000 Total

Figure 7: Data Source: Zeuli, Cropp, and Cooperatives, Cooperatives.
1. Purchasing Cooperative
2. Housing Cooperative
3. Cooperative Ownership of Production
Response to Neoliberalism: Cooperative Organization

Given the historic precedence and seemingly successful implementation of cooperatives throughout the history of the United States, I propose the three following inter-connected cooperative businesses as the foundation of a new middle-class society: first, a purchasing cooperative which organizes individual household purchasing power into an aggregate 250 times as large, able to negotiate lower prices from corporations as well as direct purchasing from wholesalers, farmers, and raw-material producers; second, a housing collective which owns a large plot of cheap industrial land in the post-industrial area of Somerville just West of Route 93; and third, a production cooperative which owns and operates newly emerging Flexible Manufacturing Cells for wood, metal, plastic and textile production.

The housing and purchasing cooperatives have long traditions in the United States and elsewhere, and their benefits are well known, so I will not go into great depth here. One significant benefit of the purchasing cooperative to point out, however, is the ability to buy food in a great enough quantity to make it possible to buy directly from farmers. This includes the purchase of entire livestock. Savings of up to 60% are possible through this type of purchasing.¹ In terms of the housing collective, the major financial benefits include the purchase of industrial land which costs roughly 50% less than existing housing land, ($715 to $325 per sq. meter from selected sites throughout the site area), the potential sharing of green-spaces and more costly facilities such as kitchens and HVAC equipment, and the lowering of monthly mortgage costs by taking out longer term, lower interest loans. In the 1960's the United States Department of Housing and Urban Development provided below market-rate interest loans to housing cooperatives as part of a program to encourage the building of affordable housing. According to Gerald Sazama, this program offered

¹ http://www.motherearthnews.com/real-food/food-policy/buy-bulk-food-zm0z14amzmar.aspx
Newly Developed Options for the Middle-Class: Re-Appropriating the Means of Production

Prior to industrialization, a mode of production existed whereby the same individual who produced a product, even if a partial product, was the same individual who appropriated the full surplus value from its sale. This occurred, logically, when the craftsmen or farmer owned all of the machines, land, and intermediary products required for production. Therefore, if the artisan paid 10 units of money for the raw materials and other inputs (overhead) required to produce 10 units of goods, and those goods were each sold for 1.5 units of money, then the extra 0.5 units of money would go entirely to the artisan.

Industrialization changed this system and introduced the wide-spread use of wage-labor. Now, The worker, even if he or she still produced a complete, sell able product, no longer worked for the differential value between input costs and sale price, but rather for a wage agreed upon prior to production. The tools and inputs of production were owned by someone else, and thus the price differential accrued to the owner of capital. Indeed, the human worker, through the process of capitalist industrialization, is converted into just another input commodity, subject to the same forces of supply and demand that wood or cloth is.

This very real commodification of labor inputs is, in part if not in whole, how the American middle-class watched 30 years of productivity gains go completely to the owners of capital. The ability to continually open up new labor sources, whether foreign or robotic, flooded the labor pool and maintained the reserve army required to suppress wages.


3 https://www.marxists.org/subject/japan/sakisaka/exploitation.htm
Industrial Land is 50% Less Per Unit Area
(Somerville, MA)

Re-organizing the 70% of built area that is
shared only within one household.

Lower monthly housing costs with long-term, low-interest rate
leases, mortgages, and incremental building.
What I am proposing in my thesis is a new hybrid mode of production based on the newly developing automated production cells, often termed flexible manufacturing systems (FMS), which are now small enough, cheap enough, and efficient enough to be owned and operated by the very same labor which these technologies were developed to replace. (Figure 9) The struggle between labor and capital, in part encouraged the development of these technologies\(^4\) to the point that they are so efficient and cheap that the base unit or quanta of competitive production is now at the scale of a few hundred square feet, and only a few million dollars. This is a many orders of magnitude shift down when compared to Henry Ford's River Rouge plant (1919) which is nearly sixteen million square feet.\(^5\)

As a proof of concept for the potential scale, cost, and productivity of these new FMS based companies, I researched Ro-Bois-Tic, a one-person cabinet making company in Quebec City. Bastien Larouche, who is the former director of Arnisco, a metal furniture maker, as well as the former plant manager at Teknion, a wood office furniture maker, started Ro-Bois-Tic with the help of Machineries Automatech, a nearby firm that designs automated production cells. Through an on-going email discussion with the CEO of Automatech I was able to better understand the requirements of these production cells, as well as find out that the Ro-Bois-Tic set up cost roughly 1.25 million dollars. When amortizing and adding yearly maintenance, material costs, as well as an additional KUKA robot for assembly, I estimate that the 60,000 cabinet yearly output would lead to a per cabinet cost of

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\(^4\) I claim the development of automation was a natural response to the strikes of the 60's and 70's, and falls within the general argument by Mario Tronti that labor struggles in fact help capitalism to recognize, and thus resolve its own areas of weakness. (see: Aureli, The Project of Autonomy)

\(^5\) It is important to note that along with the replacement of labor, these technologies were also developed in response to consumer demand for more personalized and constantly updated product lines. This in turn shifted what was scales of economy into economies of scope.
roughly $60.00. Compared to the cost of a comparable IKEA cabinet at $160.00, and a Custom Cabinet which ranges from $500 to $1000, it is clear that FMS based production will likely take over in the industry based solely on cost competitiveness. At the same time, however, the nearly $100.00 gap between the estimated Ro-Bois-Tic cost and the cost from IKEA, allows for the re-introduction of more labor into the system (Figure 10). This is ultimately the goal, to provide stable, well paying jobs that also provide increased use-value from the products made, whether through better quality and finishing, through more customization, such as bookshelves that fit perfectly within an allotted
Figure 10: Calculations based on dividing cost of labor and machines across the 60,000 units per year produced by Ro-Bois-Tic’s FMS.
What is more, because a KUKA robot owned and operated by IKEA is the exact same robot owned and operated by Ro-Bois-Tic, there is very little IKEA can do beyond bulk purchasing of robots to lower their means of production relative to Ro-Bois-Tic. On the other side, however, Mr. Larouche has nearly zero overhead while IKEA maintains a huge network of stores and distribution centers, pays marketing and advertising fees, the salaries of managers, designers, lawyers, sales workers, all the while requiring increasing profits and market share. If Mr. Larouche was to expand his business to include designers, truck drivers, machine code writers and machine operators, he could do so while not adding more than ten or twenty dollars to the per cabinet cost. (Figure 10)
<table>
<thead>
<tr>
<th>Location</th>
<th>Job Category</th>
<th>Low Salary</th>
<th>Mid Salary</th>
<th>High Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Stock Clerks and Order Fillers</td>
<td>18,060</td>
<td>19,900</td>
<td>24,300</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Photographic Process Workers and Processing Machine Operators</td>
<td>18,230</td>
<td>20,840</td>
<td>24,300</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Helpers — Production Workers</td>
<td>18,110</td>
<td>19,910</td>
<td>24,360</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Maids and Housekeeping Cleaners</td>
<td>18,080</td>
<td>20,240</td>
<td>24,400</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Waiters and Waitresses</td>
<td>17,540</td>
<td>18,650</td>
<td>24,480</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Taxi Drivers and Chauffeurs</td>
<td>18,510</td>
<td>20,940</td>
<td>25,240</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Protective Service Workers, All Other</td>
<td>17,760</td>
<td>19,550</td>
<td>25,250</td>
</tr>
<tr>
<td>Boston-Cambridge-Quincy, MA-NH</td>
<td>Childcare Workers</td>
<td>18,220</td>
<td>20,680</td>
<td>25,340</td>
</tr>
</tbody>
</table>

Figure 11: PDF of Excel Sheets showing wages and job categories for Boston area. Source: U.S. Department of Labor Statistics (www.bls.gov)

Figure 12: Zoom in of PDF sample showing job categories, titles, and average salaries (bold)
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Boston-Cambridge-Quincy, MA-NH</th>
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<tr>
<td>1.5</td>
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Figure 13: Data from U.S. Department of Labor Statistics [www.bls.gov]
Figure 14: Data from U.S. Department of Labor Statistics (www.bls.gov)
Figure 15: Data from U.S. Department of Labor Statistics [www.bls.gov]
Transportation + Material Handling

Figure 16: Data from U.S. Department of Labor Statistics (www.bls.gov)
Figure 17: Data from U.S. Department of Labor Statistics [www.bls.gov]
Boston Area Occupation in Ascending Order by Yearly Pay

Figure 18: Data from U.S. Department of Labor Statistics [www.bls.gov]
Boston Area Occupation in Ascending Order by Yearly Pay

Print, Sound, Video, Design

Figure 19: Data from U.S. Department of Labor Statistics [www.bls.gov]
Boston Area Occupation in Ascending Order by Yearly Pay

- Health Industry
- Construction Industry
- Food Industry
- Manufacturing + Machine Operators
- Other Technical
- Transportation, Mechanics + Material Handling
- Textiles
- Printing, Sound, Video, Design
- Education

Figure 20: Data from U.S. Department of Labor Statistics [www.bls.gov]
nearly every possible worker: bakers, butchers, slaughterers and meat packers, institutional and restaurant cooks, including head chefs and food service managers (Figure 17). Of note is the amount of design and media professionals who also live at or below the middle-class threshold: graphic designers, proofreaders, film and video editors, museum conservators, printing and binding workers, printing press operators, set and exhibit designers (Figure 19).

The conclusion from this research is clear. Within the middle-class exists nearly every skill-set required for the simple reproduction of society, along with many forms of more artistic production and design. A society constituted only from the middle-class could in theory, therefore, design and build its own houses, fill those houses with furniture, clothing, and simple wares, control its own material flows and storage, curate its own artifacts, and produce its own publications, music, and videos. This realization raises another question.
Mixed Product Production from Multiple FMS

Figure 21
Assuming that the emerging flexible manufacturing systems are cheap enough and productive enough for the middle classes to appropriate on their own, the next logical question is what kind of businesses might they start? If they were to set-up five basic production units, one each for wood, metal, plastic, textiles, and printing, then a collective could produce a vast array of products from books, to clothing, to mixed material products like couches, apolstered chairs, lights, and potentially all the way up to more complex machines and possibly even the basic components of replacement robots. (Figure 21) The addition of 3D metal and plastic printing would also allow replacement parts for the repair of precision equipment that can't be technically or economically made in-house. With this wide array of potential products, the collective ownership of production would also support multiple business models. On the one hand, pre-designed products with short-runs or on-demand construction could be sold through a variety of channels such as an on-line web-store or a brick-and-mortar storefront on site (Figure 22), while on the other hand, the flexibility of the production cell could be leveraged to quickly and cheaply develop

1 As will be shown, the finances of the average household improve significantly under the new cooperatives. The money required to purchase one or more FMS’s would be available.
custom products and prototypes for high-end or specialized clients. The production cell could also be used as a rent-able commodity, selling time on the machine to outside firms or on-site maker-space clients (Figure 22). The FMS’s could also be part of a distributed manufacturing network for firms such as Amazon or IKEA. In this case, the ownership of the majority of the means of production is actually off-loaded to the collective, while IKEA and Amazon profit solely on their ability to coordinate flows of commodities between buyer and maker. In a sense, this business model returns the biggest owners of capital to the role of merchant, which was the first role of the capitalist in the emerging medieval form of free-market trade.²

External Business Models

Online Retailer (Amazon)

Customer

Maker Space (Rent Space + Machine Time)

EXCESS MATERIAL WORKING SPACE CAN BE RENTED TO OUTSIDERS

EXCESS MATERIAL WORKING SPACE CAN BE RENTED TO OUTSIDERS

Community Machine Tech

Device Start-Ups (Greentown, Bolt)

bring specialty devices into space

Custom Design of Consumer Goods
(Don't want to own tools or rent space)

Figure 23
The new bottom line for businesses based on the cooperative ownership of FMS's is very hard to predict beyond what has been suggested in the Ro-Bois-Tic case-study. Savings from the housing and purchasing cooperatives, however, are more easily estimated if we assume a desire for the same use-value, ie, the same products consumed but at a lower cost. This is possible because the American Census Bureau gathers data on the average money spent within different categories. Making a few assumptions, such as a 15% savings from the purchasing cooperative on general items, and the use of the FMS's for self-production with 50% savings, I estimate that a household within the housing / purchasing collectives would see a total savings of roughly $10,000 a year (See Appendix 3.5). Currently, an average American household making $45,000 a year averages $3,300 in net-income.1 However, much of this must go to paying off the $6,700

1 http://www.bls.gov/cex/
New Bottom-Line: $45,000 Household

[Diagram showing financial flows and calculations]
1. Lower Living Costs

2. Year-to-Year Debtor to Creditor

3. Resilience Based on Community Economic Institutions

4. Setting Roots for Social Reasons, Not Debt Reasons
in credit-card debt that same household has.² An extra $10,000 a year, therefore, could first go towards paying down existing debts, with the remaining being saved or invested in stocks, bonds, or even starting a business. The result of $10,000 a year being invested at 8% return for 10 years is $178,000. With 200 households in my proposed housing collective that aggregates to $35,600,000. The housing collective in and of itself, therefore, could completely fund the five different manufacturing systems with a significant amount to spare. This would allow the new cooperative society complete control over their land, housing, work spaces, and manufacturing machines. The cooperative could in turn leverage their savings and land to incentivize certain businesses or workers they feel would benefit the overall community.

Economic Conclusions

Ultimately, due to the lowered living costs of the housing and purchasing collective which allows the shift from a yearly debtor to a creditor, the collective members household’s will grow in economic autonomy and resilience as each year passes. This I claim, would then drive a virtuous cycle whereby households staying within the collective for economic reasons would begin developing social ties to the other households. These social ties would provide a further incentive to stay on site, and would also provide the trust required for more complex and informal economic systems to develop (more on that later). The combined social and economic resilience would feedback on each other further deepening the ties to the collective.³

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² http://www.nerdwallet.com/blog/credit-card-data/average-credit-card-debt-household/
³ Of course, in a limiting feedback loop, many households may find the increasing social intimacy, along with the necessary time spent debating and managing collective governance, to be increasingly counterproductive. For those households which did not find the benefits of the collective to outweigh the added effort, it is assumed they would leave relatively quickly.
What is the possible role of planning, architecture, or physical design in supporting the economic manifesto?
So long as everyday life remains in thrall to abstract space, with its very concrete constraints; so long as the only improvements to occur are technical improvements of detail... the frequency and speed of transportation, or relatively better amenities; so long, in short, as the only connection between work spaces, leisure spaces and living spaces is supplied by the agencies of political power and by their mechanisms of control -- so long must the project of 'changing life' remain no more than a political rallying cry.

'Change life!' 'Change society!' These precepts mean nothing without the production of an appropriate space... new social relationships call for a new space, and vice versa.

- Henri Lefebvre

2.

A Spatial Manifesto for The American Middle-Class
2.1. Siting the Collective — To enact and protect the Economic Manifesto for the American Middle-Class, all three collectives must co-locate on a single plot of collectively owned land.

2.2. Plan the Collective — The collective ownership of the newly emerging means of flexible, automated production, requires a new planning strategy to support the complex and dynamic flow of material and products.

2.3. Section the Collective — The combination of production and living spaces within the same space requires a mediating infra-structure, literally an in-between space, which simultaneously buffers and connects the space of work and the space of living.

2.4. Producing a Life-World — The implication of space, distance, time, material, into the total equation of the everyday life, allows for the replacement of the typically mediated exchanges (whether from governmental control or market exchange) with a new calculus of informal interaction and exchange which seeks the use-values of the social and materially performative above all else.
2.1 Siting + Combing the Collective

Colocation of the purchasing, housing, and production collectives, while not a prerequisite for the success of each collective individually, offers a number of advantages. By combing all three collectives together on the same site, the joint members political, economic, and social resilience increases over a separated model. They gain logistical scales of economy, further reductions in transportation costs as many workers literally live on site, as well as the ability to develop informal, heterogeneous networks. These circuits of social, informational, and use-value exchange, only possible within a hyper-local space, and which the Modern American typically only experiences within the nuclear family, allows the re-configuration of what I am calling the life-world (after Seville), as opposed to the life-style proffered by new developments and smart-city innovation districts. It is self-evident that such projects provide life-styles predicated on the profits of the upper-classes and as such are highly mediated, profit driven exchanges.
Figure 25: Map of Somerville, Zoom in on Inner-Belt District Source: Google Maps
This map shows the context around the general site, as well as the specific 27,000 M² plot I have chosen. This area provides a good location for testing the three collectives for the following reasons: 1) it has good access to route 93 for logistics; 2) it is surrounded by residential neighborhoods with a mix of education levels as well as low home-ownership, so many of the middle-class already live nearby and could easily move; 3) Union Square, a growing town-center, lies just West of the site; 4) many educational institutions exist around the site; 5) many middle-class businesses exist around the site, providing potential production collective members; 6) the new Greenline extension will be only a few minutes walk away, providing access to and from the site for both collective members and potential clients and business partners.
Figure 26: Map of Site. Source: Google Maps
2.2 Planning the Collective

The organization of production during Fordism was defined by a linear process. Raw material inputs turned into usable materials, which in turn were shaped into sub-components, then into sub-assemblies, and finally into full products. (Figure 27) Because only a single product or product type was made along the production line, this allowed for highly-specialized, highly efficient machines to be designed for each step in process. This efficiency came at a cost in flexible, however, and in many cases changing between products required revamping large sections of the production line.¹

On the other end of the spectrum lies the workshop model, a continuation from medieval and ancient production modes, whereby the artisan must access his machines and assembly space in unforeseeable patterns due to the shift in products from week to week, day to day, or even hour to hour (Figure 28). Therefore, this type of production space is characterized by an open floor plan with no obvious starting or stopping point in the production process nor any clear material flow lines except from raw material storage into the

"There must be a study of the flow of materials to develop a scheme simple and direct for the transportation and handling of materials without the need for crossing or retracing of production..."

- Albert Kahn

In many ways the workshop space has remained the same over time. There is more in common between the image of the wood-shop on the left and the goldsmith shop above, then between either and the Ford factory and its spaces in Figure 27.
workspace, and then potentially back to a storage area for finished products.

Lastly, the new Flexible Manufacturing Systems (FMS) provide an in-between mode, a linear non-linearity, whereby the same tools found in a workshop are lined up and accessed by a single material handling robot. The robot goes back and forth along its linear track, but accesses the materials and machines in a non-linear sequence, allowing for different products requiring different machines to be made one after another without re-configuring the production line. Because human safety is not a concern, the machines can be placed very close together, which further increases efficiency. When exact times for operations are known, and this is likely for most all operations, software algorithms can optimize when the robot starts and stops orders. The robot can potentially overlap jobs which do not require the same machines, with the precise time to move materials between machines factored in. Ultimately, the FMS provides a significant increase in productivity over a typical workshop, while also increasing the flexibility of output compared to a typical Fordist production line.

My proposal is to use these different FMS production cells as the basis for supporting other workshops. The important point is that the FMS cell replaces labor, but doesn't necessarily replace laborers. By automating many of the more mundane and repetitive tasks


Flexible Manufacturing System + Multiple Workshops = Automation Supporting, Not Replacing Labor
of a skilled craftsman, the artisan can spend his or her time doing (training) high-value activities, such as complex joinery which cannot yet be automated. Today’s furniture maker would likely need to either learn new skills, or else hire other workers who know how to code and operate the machines. This is why the sharing of these tasks among a number of workshops becomes so advantageous. The specialized computer and robot technicians can become hired by the working cooperative, thereby ensuring control over the means of production. Due to the productivity of the FMS at many thousands of units per year, a single FMS can support multiple businesses simultaneously such as carpenters, glaziers, maker-space renters, pre-fab construction workers, among others. In the end, the workshops become more economically competitive, lowering production costs for the artisan and custom fabricator, while still allowing for the custom sizing and design which provides the major use-value of non-factory production.

In order to allow the smooth flow of goods between the supported businesses and the FMS, (Figure 33) a new configuration of the ground plane must be considered. While the factory model would line up each workshop in succession, this would cause problems as material would unnecessarily flow past workshops on its way to the final destination. Enfilade only makes sense when the material must stop at each discrete space along the way.
Plan Logic Party

Future Flexibility

Temporary Fabrication Court
In order to allow for this complex, non-linear, and highly flexible flow of materials, not only between the FMS and satellite of workshops, but also between workshops themselves, I propose a plan strategy of boxes with shared courtyards between.

The courtyard spaces between workshops allows this free flow of goods, as well as giving each workshop the freedom to organize within itself most effectively. Additionally, because the housing and working collectives exist together, the larger space between workshops allows room for both material and pedestrian flows simultaneously. Therefore, while the territory is not fully optimized in terms of ground-plan coverage, the ground plane is fully activated. This use intensifies over time as the courtyards provide space for businesses to expand, for temporary construction, and for additional parking, material storage, or other informal or flexible uses.
Plenum as Parking

Plenum as Continuous Services Conduit + Repair Access

Plenum Supports Complex Material Flows

Plenum as Structural Support for Special Program
2.3 Section the Collective

To mediate between the production spaces and living spaces of the housing collective, I propose an expansion of the concept of the plenum. Here, the plenum becomes a device which simultaneously supports production while buffering its externalities vis-à-vis housing. In terms of aiding production the plenum does the following: a) holds services and allows easy access for maintenance and repair; b) serves as parking which frees the ground plane for heavy machinery; c) flexibly opens by using modular floor plates to allow complex flows of goods, and access from above and below the workspace; and d) offers a system of attachment points and a super-structure for the hanging of program or creation of specialized environments (Figure 35). An important aspect of the plenum is also how it intensifies the production spaces in section, which offsets the relative inefficiency of the planning strategies courtyards. Because most industrial spaces have only a single ground plan being utilized (regardless of how high the shed space is) the plenum acts to effectively double the ground plane. By filling in the plenum with services that normally take up ground area on site outside of the factory space, the plenum in fact allows a significant square foot increase in overall production. The added costs of the plenum are then shared by the housing collective.
Housing

Production

Plenum as Separation between Housing + Production Activities

- 50 dB

100 dB

Plenum as Noise Buffer

Plenum as Structural Plinth for Housing

Plenum as Circulation + Social Space
The most critical function of the plenum is mediating between housing and working, which it does through the following: first, by physically separating and buffering manufacturing noises and potential environmental hazards including fire; and second, by becoming a structural plinth which in turn allows housing to be built from cheaper, more standardized wood construction, lowering the monthly costs for housing collective members. Once the plenum has fulfilled these functional requirements, it then opens up at select moments to hold circulation infrastructure and connect between working and living, creating moments of visual and spatial continuity.

As the plenum moves towards the front of the site it articulates in response to programmatic needs which shift from heavy production along the Southern edge of the site, towards more domestic and artistic production along the Northern edge (Figure 37).
2.4 Producing a Life-World

The culmination of my thesis project is the design of the collective housing and working spaces. This should be taken as just one of many possible organizations of the planning concept and articulation of the plenum. Ultimately, the design offers the background upon which the everyday lives of the workers and housing members (often they are one and the same) can unfold. A number of concepts will emerge in the captions, but I want to highlight one in particular, the idea of the hyper-local. One of the biggest differences between this project and a typical mixed-use project is the heterogeneity and array of programs, as well as the inclusion of basic production. This allows for those on site to take advantage of other programs in non-mediated, or informal ways, because of the way time is broken down on-site. It goes beyond just being close to a cafe or a grocery store. It is the ability to overlap multiple modes of life simultaneously: to work, live, eat, play, not in regimented time-slots, but in dynamic and fluid succession.

The end result would be, I hope, the re-emergence of a total life-world, a way of life that has not been possible for most people under capitalist forms of reproduction. I am just beginning to understand what this term might really mean, given that I am as much a product
of capitalism as anyone, but one thing is clear, it consists of the everyday, and it involves at least partial self-sufficiency. The ability of self-sufficiency is a powerful enabler both physically and politically. This is something Medieval cities had to overcome through citizenship and military reprieve to draw talent away from the countryside in the middle-ages, just as newly forming Capitalist cities had to overcome it through enclosure and privatization of land. Perhaps the draw of self-sufficiency has been the right to say what is simply sufficient. To not need to continually improve, expand, and compete, but instead to find ways to gain maximum use-value from minimum effort, and to leave the remaining time to more enjoyable pursuits. Of course without the ability to produce your own food, or gather your own raw-materials, self-sufficiency must take on a different meaning and a new form.

The drawings below are attempts to imagine how the three collectives might interact and reside on the same site together. The spaces are not extravagant, nor particularly radical. But they are filled with the everyday, and as such, I hope provide a point of departure for imagining how the middle classes could leverage their skill sets to produce simple, interconnected, and at least partially self-sufficient lives, relying on one another to provide both economic and social stability and resilience.
The Mechanic's workshop sits on the Southeast corner along the rail-road tracks and the North-South running Inner Belt Road. It provides car and truck services to the housing collective and working collective alike, allowing workers coming in or out to drop off their cars in the morning before heading to work. The hyper-local relationship between the mechanic and the storage area allows trailers to be loaded or unloaded while the truck cab is being serviced.
STORAGE

The storage area holds up to 225 pallets, with access from above and below. In this scenario finished goods are being loaded into the top storage racks, awaiting final delivery, while raw materials are being loaded in from below. This set-up requires specially designed sliding trays to allow access to the top racks from below as needed.
The wood production cell is churning out a short-run of 20 chairs for an Amazon order. Above, the control center for both the wood, metal, and painting systems is being run by specialized technicians who oversee the production algorithms to ensure maximum efficiency, while at the same time interceding to bump more urgent jobs ahead in the production queue.
PAINTING CELL

Automated painting can be the next step in a fully automated production process, or, pieces can be brought in from outside the production line to be painted or finished. The centralization of ventilation systems above the painting allows all of the ventilation hoods and machine vacuums to share a single, high-power fan.
Here the metal and wood shop are on the ground floor and the plenum is opened up to hold supporting floor plates for finishing and packaging. The car and truck access to the plenum also allows loading of small trucks, which in this case is for the Amazon order for delivery later that day. Below a furniture maker and designer discuss a prototype chair design with their client. This scene visualizes the FMS’s ability to support multiple businesses simultaneously. It can turn out a finished product every 5 minutes, or partial products even faster. Furthermore, because jobs have different levels of priority, the chair prototype can be inserted within the Amazon order of 20 chairs without disrupting either order.
SHARED PRODUCTION COURT

Both wood and metal fabrication spaces and the pre-fab production company can use this space as needed. In this case the pre-fab’s delivery truck is being loaded with custom concrete columns.
PRE-FAB CONSTRUCTION

The plenum allows a small-batch concrete mixer to be suspended above the workspace, freeing the ground-plane for better operation.
### Production + Painting: Machine Operators

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### Early Childhood Education + After School

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</tr>
<tr>
<td>15-4021</td>
<td>Mechanical Door Repairers, Installation, and Maintenance</td>
</tr>
<tr>
<td>15-4022</td>
<td>Structural Metal Fabricators and Finishers</td>
</tr>
<tr>
<td>15-4023</td>
<td>Ironworkers and Related Workers, All Other</td>
</tr>
<tr>
<td>15-4024</td>
<td>Floor, Ceiling, and Wall Finishing Contractors, Except Carpet, Hardwood, and Related Materials</td>
</tr>
<tr>
<td>15-4030</td>
<td>Tile, Terrazzo, and Related Workers, Except Glassworkers and Glassworkers, All Other</td>
</tr>
<tr>
<td>15-4031</td>
<td>Tile, Terrazzo, and Related Workers, Except Glassworkers and Glassworkers, All Other</td>
</tr>
<tr>
<td>15-4040</td>
<td>Metal and Plastic Extrusion Molding and Molding, Heat Treating, and Machining Machine Operators, Metal and Plastic</td>
</tr>
</tbody>
</table>

RETAIL SPACE: Double Height Bookstore, Boutique Clothing Store, 4-Story Retail Court.
CO-OP RESTAURANT, CAFE, AND OUTDOOR COURTYARD

In this scene we can imagine a typical lunch break where housing collective and working collective members have a chance to interact. The "kitchen" of the cooperative then, as in domestic space, becomes a moment not only of physical reproduction, but also of social production and reproduction. In this case, however, it goes beyond just friendship. Because the living and working collectives must share the same political and economic territory -- even if only a few thousand meters -- they must engage in debates, and vote on resolutions and by-laws which will have real consequences towards their joint future success. Thus, the common space of eating, among others, becomes a critical moment of informal negotiation and exchange towards a more effective self-governance.
In this scenario the baker, who knows the CO-OP members from their daily visit to the bakery, has stopped by to drop off some baked goods they hadn’t sold the day before and were going to have to throw out. However, the informal relationships between the fellow collective members allows the extra-governmental and non-commodified exchange of free, but typically discarded food. Instead of having to throw out the food due to government regulations or competitors who only sell perfectly fresh food, the full use-value of the baked goods can realized. In the end, a day-old bagel has just as many calories and vitamins as a two minute old bagel. This scene foregrounds the ability of the cooperatives to create more nuanced and therefore more efficient use of materials and goods. In this case, given that 40% of the food produced in the U.S. is thrown out, this is not a minor thing.
In this scenario, the baker has continued on his journey across the site and now is dropping off an order of sandwiches to the kindergarten, while also checking in on his daughter who was sick that morning. Here we see how the working cooperatives can support one another economically, creating a minor, but supportive internal economy, while the hyper-proximity of working and living collectives allows the fluid shift between work responsibilities and family care, between domestic space and work space. This flexible movement between live-work spaces allows the re-envisioning of a total life-world, something lost through the process of capitalism.
In this scene I'm depicting a yearly event that the cooperatives put on jointly, which is the creation of a tableau of all of their new product designs. This stage-set is then used for a photo and video shoot for a joint marketing campaign. They put out a catalog, a website, and TV commercials from this single event. This tableau also, however, serves as a metaphor: it is a microcosm of the microcosm that is the production cooperative. It condenses into one scene the concept stated earlier, that within the middle and lower middle-classes there exists all of the human capital and capacity required to re-create society anew [most of it at least], if only they would self-organize.
MECHANICS
2 — 20m repair bays with 2 Rear Lifts
1 — 25m trench repair bay with moveable jacks

BIO-MEDICAL LABS
100+ Researcher Capacity
1,000 m² lab space with vent hoods
150 m² dedicated clean-room
200 m² dedicated cold storage
200 m² dedicated freezer storage

CAFE + RESTAURANT
Cafe Seating Capacity = 50
Restaurant Capacity = 150
Outdoor Cafe Capacity = 40

COMMON FOREST
1900 m²

MAKER / SELF-BUILD SPACES
84 — 5m x 5m rentable studios

COMMON FIELD
800 m²
100 m² of shaded play area
PRODUCTION COLLECTIVE
Production Space = 12,500 m²
Construction + Expansion Courts = 1,750 m²
Material Production Workers = 250 +
Other Workers = 175 +

AUTOMATED WOOD PRODUCTION UNIT
Production Capacity = 100 to 200 units / day
- Edge Bander
- Core + Dowel machine
- Rotary Banders
- Material handling Robot
- Assembly Robot

HOUSING / PURCHASING COLLECTIVE
Units (HH) = 125 - 150
Population = 300 - 375
Construction + Yearly Savings = $1,250,000 - 1,500,000
10 Year Compound Savings = $22,000,000 +

PUBLISHING + EDITING
Color Offset Printing Capacity = 500 - 1000 books / day
Black + White Printing Capacity = 200 - 400 books / day
- Heidelberg SM 52 --- 15,210 sheets per hour
- Xerox Nuva 1XX --- 7,210 sheets per hour
- Book-Binding Machine

TEXTILES
Clothing Production Capacity = 540 pieces / day
- High Speed Garment Laser-Cutter --- 98 pieces of clothing cut per hour (w/ auto-feeder)
  2100mm x 3000mm cutting bed
- DORNIER air-jet weaving machine A1
  Filling Insertion Rate --- 2,500 m/min, on double picking up to 6,000 m/min
  immersed
Conclusions...

What can architecture do? In many ways this is the central question of my thesis. I don’t suppose architecture can produce or force a social outcome, Modernism already exposed this fallacy. However, I do believe architecture can support and mediate prior existing socio-economic objectives. What I have tried to do in this book, therefore, is show the possibility of a clear line of reasoning from economic problematic, to economic and social solution, to likely spatial problematics arising from those solutions, to spatial solutions to the spatial problematics, and finally, and most importantly, to how an architectural system designed to solve specific spatial problems can have a recursive relationship with the original social problematic, offering lines-of-flight and a platform for extending the social agenda within its newly forming formal language. As such, the planning and sectional strategies have many other alternatives configurations. This is, hopefully, just the start.

I have also realized more and more through my thesis process that architects hold a special position in society as those professionals with the unique ability to research and project not simply new disciplinary projects, but new societal projects as well. In many ways this feels like a much bigger contribution, when done rigorously and fairly. Under this role representation shifts from being a tool for diagramming existing conditions, a critical aspect for society as well, or selling projects, a less critical one, to a tool for examining the everyday, for testing ideas as much as forms, and most importantly, for elucidating the underlying assumptions and frameworks of our shared world. The subtleties between different political, social, and ideological spaces may be hard to tease out, but one thing I have found in my own work is that the banality of certain spaces when juxtaposed to other, more radical, or more investigated spaces, becomes an immediate litmus test for what is really being developed anew, and what is simply being copy and pasted, both conceptually and spatially.
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3.

Appendixes to the Manifestos: Theoretical, Historical, and Technical Foundations
3.1 Utopian Theories
3.2 Utopian Projects
3.3 Site Research for Design Proposal
3.4 Economic Calculations
3.5 Technical Research for Design Proposal
INTRODUCTION

Modernist attempts in the inter- and post-war years, aiming for social rejuvenation, proved unable to create top-down, technocratic “utopias,” and hence Utopian thought in the field of architecture ended at postmodernism. It is not a coincidence, in my opinion, that this coincided with the American Keynesian welfare state imploding with the stagnation of the late 70’s. Reagan and Thatcher came in and proposed a new direction: privatization, undergirded by trickle-down economics. The market would save us. The problem, they claimed, was not the wrong type of government intervention, but the very fact of government’s meddling in the first place. Within architecture specifically, Pruitt-Igoe became the epitome of overly zealous social engineering gone wrong — the architectural manifestation of Keynesianism. The hopes of modernist architecture as a positivist project were rapidly if not entirely fading by the 1980’s (Contandriopoulos 2013).

The utopia of laissez-faire neoliberalism has been tested now for over three decades and it has failed to achieve what it promised. Thomas Piketty’s Capital in the Twenty-First Century has shown what many have intuited for a long time: “Trickle-down” economics is in fact trickle-up economics, as wealth has slowly but surely aggregated to the top earners and largest holders of capital over the last thirty years.

At the turn of the century, the combination of the new millennium, the growing criticism of neoliberalism by authors such as David Harvey and Frederic Jameson, the terrorist attacks on the World Trade Center, and growing concern over the environmental damage wrought by industrialization provided ample reasons to want to rethink our options. Within architectural discourse, a number of exhibitions at the dawn of the new millennium—at the Museum of Modern Art in New York, the Pompidou in Paris, and the Venice Biennial of 2003—resurrected the 70’s avant-garde projects of Team 10, Superstudio, the Metabolists, Paul Rodolph,
and Archigram, to name a few, and brought the concept of Utopia back into vogue. Jameson, who wrote of the demise of Utopia in the late 1970’s, revisited the concept in an essay for the New Left Review in 2004. His essay was preceded by other published work, beginning in the 1990’s, by such writers as Levitas; Kuman and Bann; Scher, Claeys, and Tower; Moylan; and Harvey (Contandriopoulos 2013, 3).

Therefore, these authors offer the most easily operationalized concepts for my thesis.

In order to convey the maximum pith with the least effort, these short essays are sometimes disjointed, and perhaps overly reductive. My goal in presenting them is to provide summaries of major Utopian theories and key points that have seeded my own thinking in framing the theoretical, social, and economic concepts for my own project. This is ultimately a design thesis, not a history or theory thesis, and I have drawn on these texts with that in mind.

With that said as an introductory comment, if we look back to Pruitt-Igoe, we must recognize that the failure was not only, or even primarily, in the architecture but rather in the desire and hope that a single architectural project, and the organization of human beings into that project, would produce a social transformation. Housing is a critical component to social reproduction, yes, but it is not the only one. The transformation of society at that moment in history was powerful, and it was object-based, and indeed fetishized objects, beginning with the train and the steam engine and extending, in the late 19th and early 20th centuries, to the electric light, cars and planes, elevators and high-rise steel buildings, dishwashers and vacuum cleaners, radio and TV, and, most enigmatically, the atomic bomb. If such a (relatively) small contraption could force the Japanese empire into submission, we understandably wonder, why can’t a thoughtfully designed and heavily subsidized...
building reverse poverty?

What we have learned since Pruitt-Igoe—and surely some must have known it at the
time, even if they were not willing to admit it then—is that the social reproduction of
any culture or group of people is complex and cannot be forced from the top down, nor
achieved through a single avenue. But there was an overreaction, of course, to the failure
of modernism that then ignored for decades the vital substructural role of space, territory,
and form in the social. (ref)

My goal in this section is to attempt to research prior utopian and futurist projects
from which an urban designer or architect could begin the work of creating a new
theoretical framework for the projection of new, even radical socio-economic spaces.
By necessity this framework it will be multidisciplinary; how could a Utopia not be?

Base Definitions

In his article “A Short History of Utopian Studies,” Peter Fitting (Fitting 2009, 126–27)
provides some useful working definitions from Lyman Tower Sargent. They are as follows:

Utopianism — social dreaming.

Utopia — a non-existent society described in considerable detail and normally located in
time and space.

Eutopia or positive Utopia—a non-existent society described in considerable detail and
normally located in time and space that the author intended a contemporaneous reader to view as considerably better than the society in which the reader lived.

Dystopia or negative Utopia—a non-existent society described in considerable
detail and normally located in time and space that the author intended a contemporaneous reader to view as considerably worse than the society in which the reader lived.

Utopian satire—a non-existent society described in considerable detail and normally
located in time and space that the author intended a contemporaneous reader to view as a criticism of utopianism generally or of some particular Utopia.

Critical Utopia—a non-existent society described in considerable detail and normally
located in time and space that the author intended a contemporaneous reader to view as better than contemporary society but with difficult problems that the described society may or may not be able to solve and which takes a critical view of the utopian genre.

UTOPIAN THEORY SKETCHES

PLATO

Plato’s Republic was written around the time of the Peloponnesian war, and, as Mumford points out, “in the midst of defeat” (Mumford 2013, 7). It is not surprising, then,
that Plato would seek solace in a meditation on the ideal society. More telling, perhaps, Plato bases his utopian vision on the terrain and society he knows: the “valley section” from mountain to ocean and a community of discrete size and boundaries, large enough to “supply the greater part of the food needed,” whose members shared common institutions, beliefs, and culture (Mumford, 7). Plato even maintains the existing class structure of ruler, warrior, and worker, which Mumford regards as “rationalizing,” because this was Plato’s preferred division of labor. (Cf. Frederic Jameson.) The more critical question relative to Plato’s theory, however, and what much of his theory turns on, is how one finds his or her way into each class. The short answer is that Plato invokes a combination of breeding (genetics/nature), education (nurture/plasticity), and discipline. He understood that a person’s final place in society was a mixture of innate talents, taught abilities, and personal self-control. This is a unique conception of Utopia, one that bases the ideal functioning of society on the proper raising and training of children for specific duties.

While Plato leaves the proper training and reproduction of artisans and workers to apprenticeship, he takes more care in his description of the ruling class. He argues that Guardians (philosopher-king rulers, of which he naturally would be one) would best be produced by a combination of lineage (biological breeding)—believing on the whole, as he did, that the wise would bear the wise—and specific training. The children of Guardians must prove themselves truly worthy of the role, however, and blood is no guarantor of future position.

The Guardians are the most critical class in Plato’s Utopia as he points out, logically enough, that a person who claims to be a proper carpenter or shoemaker but is not can destroy only a few items, but a person who claims to be a Guardian but is in fact not puts the whole of society in peril. Plato further believed that most citizens did not have the capacity to be rulers over the public. He felt that properly serving as such required a degree of scientific understanding and discipline that the common man or woman simply did not possess, nor could be trained to possess. And hence the first qualification for rulership was the proper bloodline. To the degree that this is in fact correct, which is highly debatable, Plato did at least devise the most likely program for preparing the next generation of rulers, involving the breeding and training alluded to above.

As might be expected from one of the founders of Western philosophy, and as stated well by Mumford:

Plato has his limitations; and here is the principal one: Plato distrusted the emotional life, and whilst he was prepared to do full homage to man’s obvious sensualities, he feared the emotions as a tight-rope walker fears the wind; for they threatened his balance. In one significant passage he classifies “love” with disease and drunkenness, as a vulgar misfortune.” (Mumford, 13).

What is most problematic with this is not whether it is wrong or right—love can objectively be understood as a chemical dependence on another person, an addiction
of sorts—but the fact that Plato cannot do away with love in society; he must contend with it if he wants to take into account the full measure of human society. To ignore the emotional life, the artistic, the musical, and to deny his Guardians such an education is to propose to raise only half-human rulers. A lack of sensitivity to this other dimension of human life means that the legitimacy of such activities will not be assured, and worse, they may be denied outright.

That said, Plato’s uniqueness among and contribution to utopian thinking is undeniable. He was one of the first to propose a renewal of human society through the logical and creative mental construction of a yet unbuilt system. He understood both that all are not equally endowed in temperament or intelligence, and thus that people are best suited for different kinds of work; and that along with an individual’s natural proclivities, training determines a large part of the final makeup of a person. Thus, for “every kind of work . . . a particular kind of aptitude and training” (Mumford, 10).

Plato’s ideal city was criticized by Karl Popper and others as being totalitarian. This is understandable, since the Nazi regime and Plato’s philosopher-kings seemed functionally similar. For Popper, Plato’s vision of a ruling class defined by family lines and a working class composed of what Popper labeled “human cattle” was distinctly anti-liberal and anti-democratic, and hence totalitarian.

THOMAS MORE

Thomas More wrote Utopia in Latin in 1516; it was finally translated into English in 1551. In this work, More, through the narrator Raphael Hythlodaeus, describes both the existing problems of contemporary Antwerp and his ideal island society. More’s book is perhaps most important for its revival of utopian thought, which had lain dormant since Plato’s Republic for nearly two millennia.

More wrote Utopia both in response to a revived sense of possibility and hope that humanity could manufacture a good life, and as a simultaneous critique of his current society. Mumford claims that just by replacing some names, the current woes of his time in the mid-twentieth century and the problems of More’s time look oddly similar. And even more astutely, Mumford tells us that “everyone stubbornly refuses to look at the matter through Raphael Hythlodaeus’s eyes and to see that the robbery and violence which are abroad are not a cause of bad times but the result of them” (More 2002, 14). Some of the conditions Raphael refers to are the propensity of kings to engage in war and the resulting loss of money for the local population, the use of execution for minor offenses, and the use of enclosure to remove public lands from farmers who starve as a consequence.

There is a direct link therefore, between the theory of Plato’s Republic and that of More’s Utopia. Raphael points out, as did Plato, that kings must rule with strong philosophical understanding. “Plato doubtless
did well foresee, unless kings themselves would apply their minds to the study of philosophy, that else they would never thoroughly allow the council of philosophers, being themselves before, even from their tender age, infected and corrupt with perverse and evil opinions.” (More, 2002). Rulers spend more effort creating new wars and expanding their power and empires, More claims, than actually ruling over the ones they already have.

More lays out a very rigid and precise formal territory for his Utopia, with repeated units of cities, which are quarted, and holds 6,000 households, each with ten to sixteen adults. Every thirty households are consolidated and elect a leader. As towns grow beyond natural limits of production, new colonies are set up. The entire society is located on an island created by the digging of a fifteen-mile wide channel.

Crucial to the theory behind More’s Utopia is the idea of private property and its bearing on the ability of society to rise to a state of “perfect commonwealth” (Manuel and Manuel). More removes all private property from his utopian island, storing material goods in warehouses, from which households collect items as needed. Quentin Skinner, however, believes that More wrote his book to prove that this won’t work—that a communist-based society is an impossibility—and so the best thing we can do is find a pragmatic solution. Turning Utopia on its head—to show its absurdity—More sets the boundary, according to Skinner, to our possible thinking. According to Skinner, then, More wrote his Utopia in order to show us what is not possible, not what is. From there we should move toward considering what sort of reality is obtainable.

CHARLES FOURIER

Charles Fourier was the most important of the associationists. Fourier differentiates himself from other utopian thinkers by focusing not on how to change human nature, but on discovering what it is, and then designing for that. In other words, instead of trying to convince men and women to be something they are not naturally, he reorients the design of the community to safely allow for normal human passions and instincts, thereby reflecting an “understanding of man’s actual physical and mental makeup” (Mumford, 27). A good community then, is one which allows human passions to be positively utilized instead of reined in or redirected. If human nature provides guidelines for designing Utopia, the actual goal of a utopian community is to produce unity and cooperation en route to the fulfillment of our species’ destiny. That destiny, according to Fourier, breaks down to the following three areas: “an industrial destiny, to harmonize the material world; a social destiny, to harmonize the passional or moral world; and an intellectual destiny, to discover the laws of the universal order and harmony” (Mumford, 27). Fourier’s design is based on achieving these three things.

Fourier’s approach is based on his belief that the problem with modern society is not that it focuses on the wrong things per
se, but that it doesn’t focus on all of the areas required for harmony. This unbalance creates “dissonance” in society, and from this come all of the major ills of the world. To solve this imbalance, individuals and families must come together and create new institutions which make possible the balanced pursuit of all three areas mentioned above.

Tightly coordinated communities also provide a material/economic benefit by allowing individuals and family units to seek a more efficient lifestyle, one that removes duplication and waste, and the excesses required when each person seeks for him or herself all of the necessities of life. This is a foundational argument for many communal thinkers, and one that will be picked up again and again.

Unlike many literature-based utopian thinkers who focus on process and social interaction, Fourier provides “minute plans and tables” to describe his Utopia. These are summarized as such:

- The base of the community is a group of 1,500 to 1,600 persons;
- This group lives on a large piece of land (about 3,000 hectares), which allows the community control over the means of its total physical reproduction. and thus a diversity of land types;
- Though agriculture is the basis of community life, all art forms would be practiced; and
- All members live in the phalanx, an enormous single building with three wings which map to the Material, Social, and Intellectual domains.

One aspect of Fourier’s utopian project which reveals his earnest sensitivity to human nature is his insistence that public and private life be both balanced and flexibly controlled by the members. For example, while communal kitchens are used to save money, dining can be done in private if so desired. This flexibility, social sensitivity, and bottom-up self-organization and operation are offset, however, by his top-down insistence that everyone lives in the phalanx, and that the phalanx be a specific form. In the end, then, Fourier produces a rigid structure based on what he feels are the required elements of life, but then, within that framework, allows individuals to make their own choices and find their own balance. While he is overly didactic in his specific understanding of personalities, Fourier does notice, unlike Plato, that emotions and personal desires must be accounted for.

In terms of economics and property, each member is guaranteed a base of food, clothing, and lodging. This prefigures current claims for a universal living salary regardless of employment status. Private property exists but is derived from one’s share in the stock of the “community-cum-company,” as it were. Profit-sharing replaces pure wages. Large-scale production is used when possible to maximize efficiency, as is specialization, though monotony and alienation are mitigated by rotating jobs every so often. Again, a balance between top-down and bottom-up is attempted, though it appears that here it is likely shifted too far toward the top-down coordination of jobs. The community benefits from the purchase and exchange of goods as a single entity, much like a co-op
today. This aggregated demand is one of the more important economic benefits of small-scale community utopias and helps to offset inefficiencies inherent in the direct democratic control of operations, specifically the time spent debating and arriving at consensus.

It is interesting to note the contrast between Plato and Fourier. What one lacked in insight, the other had. Fourier likely left too much open to human whim and innate nature. Plato likely left too much to training and education, believing that innate instincts and desires were not important. Their respective cultures may explain much of the difference. And as Jameson points out, the ideological counterpoint to a given point of view reveals its underlying assumptions.

Note: It is important to remark that while the American phalanstery at Brook Farm was based on Fourier’s theories, it was far from a rigorous attempt, and Fourier would have very possibly been just as critical of it as he was of ordinary society. It is also important to point out that the kibbutz, arguably the most successful actualized utopian project, has many similarities with the Fourier plan, both socially and economically—in particular, its balance between community and individual life and its economic structure, which let the community take advantage of its larger purchasing power.

EDWARD BELLAMY

Edward Bellamy’s theories are laid out in his book Looking Backwards, where we follow the young Julius West, a wealthy, educated Bostonian who compares the present day of 1887 with an imagined 2000. Bellamy focuses on labor organization and wealth distribution as the driving force for institutional invention. This makes sense, given the context of rapidly industrializing America. Bellamy’s central proposal is that Americans should form a “Great Trust,” whereby they organize for themselves economically just as they had politically. He proposes, in short, a single national corporation, which is tantamount to a top-down government-controlled economy.

There is clearly embedded in this proposal a critique of the effects of capitalist competition on society. All individuals work for the government in Bellamy’s Utopia and are, by nature of being citizens, employees of the government and automatically given jobs according to where they fit best. After college education, citizens enlist in the labor army for three years and perform the menial tasks that older generations reject. After the three years, however, a citizen can apply to specific trades which are "open" by fiat of the government (in order to control labor numbers in each field). Free training is provided up to the age of 30 (Mumford, 37-39). To encourage workers to join specific fields, yearly work hours are reduced for those fields. Pay, however, is the same for all jobs and all workers: $4,000 per year (Mumford, 38). Pay is based on need, not capacity. To discourage what Russia experienced during its experiment, workers who do not put forth their full effort are docked pay.

The industry of Bellamy’s utopian
nation is essentially run like the American military industrial complex: ten departments representing all of the country’s industries, with bureaus subdividing the industries. The President is the general of the industrial army, is chosen from the “corps commanders,” and must, like all generals, work his or her way up from the common laborer. The benefit of this system is the benefit, theoretically, of communist countries: Each person is essentially treated as an equal economically, if not intellectually.

Mumford is highly critical of Bellamy, and his best critique, in my opinion, is quite simple: Bellamy has subordinated human ends (emotions, relationships, personal freedom, choice, and exploration) to the ends of production and industrial organization. He has flipped the cart for the horse. Mumford believes implicitly that we should work so we can then live; Bellamy sets up a situation whereby the country is organized and exists so that everyone can work. Furthermore, instead of individuals being able to at least choose which capitalist corporation they will be organized under, in Bellamy’s case, there is no choice. This is, in the end, communism. Even if we disagree with American consumerism, and believe that marketing has convinced Americans to own things they don’t need and that don’t make them happy, we cannot argue with the fact that in the end, corporations must produce goods that a large portion of the American population wants. Thus the idiom: Vote with your wallet. In the end, the American market is a bottom-up-driven system. One could argue, in fact, that the marketplace is more democratic than our government. We don’t give our money to other people who then purchase goods on our behalf, even if this might produce better results in many ways. But this is how we administer power over decisions of war, taxation, and other areas of governance.

For Mumford, however, Bellamy isn’t completely wrong. His overarching impulse is equality: that all are educated, fed, and paid well. He wanted, as Mumford notes, “private life to be simple and public life to be splendid” (38). The problem isn’t Bellamy’s ends, it’s his means. And this, it seems, is always the problem with utopias. Hoping that all men and women will have an equal shot in life is not very hard to agree with, but how to achieve that, so that feedback loops that produce differences and inequality are balanced by feedback loops that remove said differences, is the question.

Main Points:
1. Americans organize themselves into a great trust, or single governmental corporation.
2. All citizens receive jobs, are given free education, and the same pay. Money is not used as an incentive, only to dissuade laziness.
3. The President is the general of the industrial army, which presumably means the American people would vote for the nation CEO every 4 years.

Critique:
1. People organizing a flexible system of representative democracy with checks and balances is not the same as coordinating an dynamic economy towards the most efficient allocation of resources. Voting for someone
to make decisions and respond to crisis as they occur is far different than coordinating millions of individual workers who must be constantly moving and producing.

2. Bellamy’s ends are not the problem, it is his understanding of the proper methods for achieving economic fairness,

ERNST BLOCH

Ernst Bloch’s Utopia has been often used to justify utopian thought. Bloch’s definition of Utopia is broad, encompassing literature, architecture, and music. The common theme, and what defines a project for Bloch as utopian, is that it “dreams of a better life” (Levitas 1990, 14). For Bloch, Utopia is not just the act and emotional experience of dreaming; utopian thought also requires recognizing that the future has not yet been decided, that the world is always in a process of becoming, and thus Utopia must think forward and imagine how human actions could alter future society. Bloch is critical of projects that do not also include the processional realities required to bring about Utopia. Ultimately Bloch’s work attempts to restore utopian thinking within the Marxist tradition.

To develop his critical approach to utopian thought, Bloch defines two types of utopias: abstract and concrete. Abstract Utopia is defined by him as “fantastic,” “compensatory,” “wishful,” and, crucially, “not accompanied by a will to change anything” (Levitas, 15). It is, in the end, a daydream. And in wishing for such, what often changes is not the world but the dreamer’s place in it. As Bloch says, “most people in the street look as if they are thinking about something else entirely. The something else is predominantly money, but also what it could be changed into” (Bloch 1986, 33). Another form of abstract utopian thought does imagine a world transformed, but in such a way that is simply not possible of realization.

What is universal in Bloch’s understanding of abstract utopianism is self-centeredness, combined with a form of defeatism. Either there is no belief that the world can change, or else no desire to put forth the energy to change it. It is daydreaming purely as an escape from the reality of the world—an escapism based on the ability of humans to fool themselves emotionally into feeling a semblance of what they would feel if actually embedded in the situation they dream of. It is, as Bloch says, compensatory. It is, perhaps, what we offer ourselves after we have given up the hope or will to make what we want to happen actually happen.

On the other hand, concrete utopian thought moves past wishful thinking to include willful thinking, and as such it becomes a much more serious affair. As Bloch says: “There is never anything soft about conscious-known hope, but a will within it insists: it should be so, it must become so.” (Bloch, 147)

The critical difference between abstract and concrete Utopia is that the latter expresses both desire and hope, while the former has only desire. Bloch’s duality is not new, and he is influenced by Pisarev’s writing,
which Lenin quotes in “What is to be Done”:

The rift between dreams and reality causes no harm if only the person dreaming believes seriously in his dream, if he attentively observes life, compares his observations with his castles in the air and if, generally speaking, he works conscientiously for the achievement of his fantasies. If there is some connection between dreams and life then all is well (Bloch, 211).

Bloch makes a critical observation about concrete Utopia which, in my opinion, is far more revealing than simply pointing to thought that also has will behind it. Bloch understands that the future is a “realm of possibility” (Bloch, 17). The concept of the state space has become more and more important in science since the discovery of thermodynamics and the understanding that any system has a probabilistic tendency toward a given state. A thunderstorm doesn’t come from nowhere. It is a complex and evolving state of energy, heat and cold differentials, moisture, updrafts and downdrafts, and other factors. Likewise, social movements and political and economic change can explode out of seemingly benign circumstances. Bloch, in my opinion, understands that the future is not written simply in the recursiveness of past actions and already instatiated institutions (which, Harvey points out, do tend toward repetition), but that conditions will often drive new formations from the pieces and energies of the current moment. I am reading into his work perhaps too much; but the concept of the realm of possibility suggests a profound intuition. That intuition ultimately tells us that the future will be something, so why not push it toward a specific direction? The question of what that direction should be almost always produces contention, but if the question is not even considered, then those in power will most likely simply reproduce themselves. Why wouldn’t they?

Bloch also states that a defining feature of concrete Utopia is that it “can only be discredited by the bourgeoisie” (Bloch, 157). Here Bloch reveals his Marxist reading of society. If an idea is worthy of criticism by the bourgeoisie (the owners of capital and the means of production), then it means the idea is twofold: First, it defines an actually possible future, otherwise the bourgeoisie would not take notice; and second, it must be radical enough to threaten the hegemony of the elites and wealthy classes—for again, anything easily subsumed within a capitalist system would likely not raise problems.

But if a utopian idea is radical and yet reasonable enough to legitimately threaten the power structure of capitalist society, it will also free up a new space for physical design. “Only the beginnings of a different society,” Bloch claims, “will make true architecture possible again” (Bloch 1988, 190, quoted in Coleman 2013, 351). Bloch does not have faith, however, that architecture can lead the way, as he believed it is subsumed within capitalist processes so fully that its radical imaginary capacity is thwarted. Lefebvre agrees with this and defines the “blind-field” as its condition.
HENRI LEFEBVRE

My notes on Lefebvre's understanding of Utopia are taken from a combination of David Harvey's essays in Spaces of Hope and Nathaniel Coleman's essay "Utopian Prospect of Henri Lefebvre," written in 2013. The most important aspect of Lefebvre's theory of Utopia is that he is against traditional utopias owing to their fixed spatial form, which he believes amounts to "closed authoritarianism" (Harvey 2000, 182). According to Harvey, Lefebvre believes that space—that is, physical space—must, "always remain as an endlessly open possibility" (Harvey, 182). Harvey, in turn, critiques this insistence on formlessness by pointing out that building anything, no matter how small or temporary, is an act of "closure" and thus, to a greater or lesser extent, an authoritarian act. Some measure of top-down fixed structuring is necessary if anything new is to be constructed. In the end, decisions must be made by someone.

Critical of industrialized cities, and of the economic and social forms involved in creating them, Lefebvre looked backwards (in a similar fashion as did romanticism) in an attempt to reconnect to a non-capitalist social foundation. He was not nostalgic for the past, however, nor did he believe in technological positivism. Rather, Lefebvre drew on history and past forms, both social and spatial, to understand both what had been lost and what had been gained—and, more importantly, what we might want to recover in the future. In the end, though, he felt that a more just and self-directed social space could come out of modernity (this doesn’t make sense, add to it) (Coleman 2013, 350).

Lefebvre conveys a critical understanding of the relationship of the physical form of the city, and of buildings in particular, to the social forms that engendered their construction and which they are intended to accommodate. The structure of the social and economic in society is mirrored in its architecture, because people quite logically build space and infrastructure that will catalyze their socioeconomic systems. For Lefebvre, then, spaces built within a capitalist system will necessarily further the aims of capitalism. Hence, social and economic reform also requires spatial reform. But this spatial reform must be of the underlying substructure, not simply its outward signs. Otherwise, those in charge of redesigning space will not be affecting the actual problem, but will in fact simply be making gestures, as it were, to society. Lefebvre stated it this way:

In connection with the city and its extensions (outskirts, suburbs) one occasionally hears talk of a "pathology of space" of "ailing neighbourhoods" and so on. This kind of phraseology makes it easy for people who use it—architects, urbanists, planners—to suggest the idea that they are in effect "doctors of space." This is to promote the spread of some particularly mystifying notions, and especially the idea that the modern city is a product not of the capitalist or neocapitalist system but rather of some putative "sickness" of society. Such formulations serve to divert attention from the criticism of space to replace critical analysis by schemata that are at once not very rational and very reactionary. (Lefebvre 1991, 99,
What is worse, in my judgment: As a result of this type of language, many projects which claim to attempt to fix the real problem, or at least address the symptoms of the problem, instead provide false a diagnosis and are used to actually accelerate the control of capitalism, rather than reversing it or at least yielding a temporary salve to the wounds inflicted by uneven development.

Coleman confronts head-on the issues raised by Harvey to the effect that Lefebvre’s resistance to actualizing formal designs keeps him in a perpetual state of longing, unable to actually do anything for fear of creating a totalitarian edifice. Coleman defends Lefebvre’s claim that he is simply avoiding closure to prevent “entrapment within the dominant system, at least until a new consciousness takes shape in architects” (Coleman, 352)—and, more to the point, Coleman believes that Lefebvre is also resisting closure because he doesn’t particularly care what the city or its buildings look like, only that people are able to use and create space democratically.

That said, Harvey’s critique of Lefebvre is still valid. Permanent, lasting, and meaningful change along the lines that both Harvey and Lefebvre believe is necessary will by definition require the redevelopment of socioeconomic institutions: It would seem highly unlikely that a city could shift from a capitalist form of social and material reproduction to an ancient or socialist form without it eventually having a significant impact on the physical space of the city.

Indeed, as Lefebvre’s own words make clear, a new spatial form will be required to best fit and engender those recast social structures; it would make little sense for Lefebvre to tell us that the factory and the form of economic and social production are closely implicated one in the other, while at the same time telling us that we should not in fact have to design new factories if and when we shift away from capitalist forms of production. For Lefebvre to be consistent, he must at least acknowledge the need for new forms, even if he himself has no interest in designing those forms. His emphasis on new ‘space’ does not help either. The term must translate from his abstract conceptionalization of socio-economic-spatial processes, to something tangible: streets, blocks, buildings, parks. These are the elements of the city he wants centrality for. These are the elements to be arranged towards his theoretical and moral goals.

A possible way out for Lefebvre would be to suggest that only those people who use the spaces should be the ones to appropriate them and re-use them as they see fit. In this way, both conceptual restraints are satisfied. On the one hand, space and form are open to being redeveloped, but because that is done so by the owners of those spaces, or by the public at large acting as a direct democratic body, the process of redevelopment avoids being controlled by top-down architects, planners, developers, and the like. This may in fact be what Lefebvre meant, as Coleman tells us:

Beginning with a conviction that everyday life has been progressively colonized by the destructive forces of positivism—planning, development, management—and that this
has deformed the quotidian by attempting to subsume it (visible in the increasing disunity and alienation of community life). Lefebvre proposed an alternative unitary theory of the everyday and its possibilities. Although critical of the excesses of 19th century Romanticism, he valued its critique of Bourgeoisie life; its aptitude for acting against the solvent of modernity through clarifying distanciation (set within an idealized, unified, precapitalist past). By unpicking this crucial aspect of Romanticism from its potentially enervating nostalgia, Lefebvre projected a forward-looking Revolutionary Romanticism (Coleman, 354).

The banality of the everyday and its universalness, therefore, acts as a common denominator for all humans regardless of the system they live under. Because of this, the everyday becomes not only the “platform” from which bureaucratic control originates, but also the point from which resistance originates (355). As such, Lefebvre’s utopia argues for engagement with present conditions and systems (in part through the critique of the everyday), looking for “cracks” that can only be found when in a utopian state of mind, but once identified can be leveraged toward a possible new future condition. By doing so, top-down positivism, which according to Lefebvre is the same as the “absence of thought,” is done away with, in favor of bottom-up self-actualization (Coleman, 355).

Another aspect of Lefebvre’s utopian project is the importance of the reconsolidation of activities. This counters the increasing atomization of society in all areas during modernization, but can be seen most clearly in the division of labor. It is important for Lefebvre that utopian theorizing considers social life as a unified entity. Positivism, according to Lefebvre, says such an act is impossible, and hence proceeds toward the specialization and fracturing of life (Coleman, 356). Because Utopia must work in the cracks, it cannot happen all at once, and allows for “small successes, hard won incrementally through direct action” (357). In the end, “research and testing, as a dialectic process” is, for Lefebvre, “the key to a utopianism that would be constitutive rather than pathological” (Coleman, 357).

Lefebvre argues that his dialectical process (or, as he calls it, transduction), being based in research and in a rigorous understanding of the existing systems and conditions, prevents people from “scientific fictions and grandiose visions gone astray” (Lefebvre 1996a, 156, quoted in Coleman 2013, 359). Lefebvre also believes that these tactics must be tested “on the ground,” and as such threaten the professional expertise of the architect and planner, who must rely not on “the significations perceived and lived by those who inhabit, but [on] their interpretation of inhabiting. It is graphic and visual, tending towards metalanguage” (Lefebvre 1996a, 152, quoted in Coleman, 359). This is a pretty damning argument, one that he elucidates as the blind-field in The Urban Revolution; it provides a strong warning to any designer that he or she must at least contend with. Is the process of designing space for another person appropriate at all? How can a designer go about formulating new spaces for new social
institutions without being closely allied with those communities and their social agendas? Lefebvre seems to suggest that transduction is the only possible way to do that, and he further suggests that this requires testing on the ground. What that means is not entirely clear, but it may be akin to a pilot project, or some other attempt to achieve verified results with minimal to no risk involved, other than financial loss.

**DAVID HARVEY**

David Harvey is one of the most important figures in contemporary critical theory. He has written not only clear explications of other utopian theorists—namely, Henri Lefebvre, Roberto Unger, and Michel Foucault—but has himself produced one of the more nuanced and measured of utopian theorizations. Harvey begins his essay by discussing Lefebvre’s insistence on creative and open exploration of new social forms and spatial productions, even as he simultaneously refused to engage in fixed spatial forms because of their inherent rationalization and authoritarian nature. For Harvey, Lefebvre is living in his own fantasy world because he “refuses to confront the underlying problem: that to materialize a space is to engage with closure (however temporary) which is an authoritarian act” (Harvey 2000, 183). If you are to enact any kind of utopian project you must confront the problem of enclosure and the exercise of authority that solving it requires.

Harvey next moves to a discussion of Foucault’s concept of heterotopia, which he sees as a way out of Lefebvre’s conundrum. The spaces of “difference, alterity, and ‘the other’” order the social world in a different manner than do the normative spaces around it. These spaces, so it is argued, offer places to start from in the search for alternatives. But difference alone is not enough, Harvey argues, and in the end Foucault does not offer a way of guiding the different spaces into a coherent, newly organized whole. Just allowing for alternative ways of doing things is not enough. Furthermore, many of the spaces of heterotopia, upon closer examination, produce quite dystopic results, or are at least spaces we would not want to be more than temporary visitors to (Harvey, 183).

Harvey concludes his discussion both of the endlessly open concept of Lefebvre’s utopia and of the counter-concept of Foucault’s heterotopia by pointing out that even the most open processes must ultimately “crystallize” into a pattern, and culminate in stable sets of institutions. This is how real things get done. And furthermore, once something is decided and built (whether physical or not), that thing has a certain permanence to it which tends to reproduce its logic. Flexibility in systems tends to diminish over time, then, as path dependence settles in. Ultimately, whether we like it or not, Harvey claims, there is no escaping the need to make discrete choices and seek closure. Furthermore, the reconstruction of social processes must contend with embedded systems that tend to reproduce themselves.

Harvey next discusses Roberto Unger...
and his invoking of institutional testing and exploration as a means of liberation. The same critique applies to Unger’s thinking as to Lefebvre’s, however: You cannot keep choices open forever and still accomplish anything meaningful. Decisions are made which close out other options. An image of new social institutions without an example or suggestion of their realization in the real, spatio-temporal world is only a hope and a wish. Harvey’s conclusion is that we must move beyond just images to begin envisioning how these ideals could be actualized, because without these more concrete visions we do not know how to proceed in a new direction.

Harvey points out a few examples of recent utopian literature, specifically the science fiction work of, which more easily reveals the “continuous process of struggle” and “spatiotemporal dynamics” of how the real world operates (Harvey 2004, 198), thereby providing an example for how Utopia might be described and theorized in a manner that could be operationalized on the ground. This is, in Harvey’s opinion, a great improvement over the classical and static utopian projects (More et al.), which ultimately amount to wishful thinking. Harvey cites Kim Stanley Robinson’s trilogy on a Mars colony as an example of the new breed of recent literature that does take into account the necessary dynamics and complexities of real-life decision making. He writes about her book: “The formation of society on Mars entails the production of a world that is continuously evolving new forms out of itself”—and, critically, notes that “each decision point marks an ‘either-or’ and who wins the battle changes the trajectory of development without, however, necessarily carrying all of the opposition with it” (Harvey 2004, 190). In the end, Harvey reminds us that for all the limitations of novels—in particular, their frequent lack of political realism—they at least reveal to us the necessity of thinking in terms of dynamics, which are institutional, social, and economic. Dynamics are, in the end, what Harvey is all about. Within this stated frame of mind, Harvey then positions capitalism as one specific mode of utopian dynamics, one based on the internationally open movement of goods, services, capital, and information. What Harvey is seeking, however, is a new system of dynamics that does not produce the negative contradictions, crisis formation, and uneven distribution of wealth (among other problems) that capitalist dynamics do.

While social and economic dynamics are important for Harvey, they do not capture the full range of relevant interactions if they do not also include spatial formations and processes. For space plays a critical role in advancing the power of capitalism, and it will play a critical role in facilitating all other forms of organization as well. On the other hand, Harvey also critiques “spatial form utopianism”—here we can single out Bruno Taut, Le Corubsier, or Frank Lloyd Wright, to name just a few—as constituting just a static container for imagining social action on an urban scale.

Ultimately Harvey wants to see how utopian thought would operate with both the social and spatial aspects elaborated dynamically through time and taking account of the uneven development so typical of
current capitalist growth (196). Harvey further argues that we must accept the problems inherent in actualization: in choosing one option over another, and thus ruling out other possible directions for at least a moment—and often more permanently. What we should do, then, according to Harvey, is “define an alternative, not in terms of some static spatial form or even of some perfected emancipatory process,” but rather “a dialectical utopianism” which understands clearly the “present possibilities” while simultaneously holding to a belief regarding exactly the trajectory society should be proceeding along (198).

The desirable dialectic, Harvey believes, is one “able to address spatiotemporal dynamics,” able to “represent multiple intersecting material processes,” and able, at least conceptually, to “overturn the socio-ecological forms imposed by . . . capital accumulation, class privileges, and gross inequalities of political-economic power” (Harvey 2004, 199). Harvey wants to open up an area for experimental thinking, then, which still allows for real action. While his argument is more precise than many others, his conclusion—that we must produce reasoned and realizable utopian visions—is nothing new.

Harvey uses the architect as a metaphor to lead into his suggested solutions for action within this dialectical process. He believes that each individual should consider him or herself the architect of his or her life. Agency, therefore, and the belief in one’s power to act and change the course of one’s life are critical. Harvey quotes Marx, who in Capital, Volume 1, avers that:

Labour is, in the first place, a process in which both man and Nature participate, and in which man of his own accord starts, regulates, and controls the material re-actions between himself and Nature. . . . By thus acting on the external world and changing it, he at the same time changes his own nature. . . . what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour process we get a result that existed in the imagination of the labourer at its commencement (Marx 1967, 177-8, quoted in Harvey 2004, 200).

But Harvey quickly tempers this rather pure idealism with another Marx quotation, from the “Communist Manifesto”: “it is not the consciousness of men that determines their being but, on the contrary, their social being that determines their consciousness” (Marx and Engels, 1972, 4: quoted in Harvey 2004, 201). For Harvey this means that men and women are often unprepared for truly revolutionary thinking; their minds are too ingrained with a certain consciousness that itself grows out of the specific material and productive conditions in which they grew up. Harvey uses capitalism, and its singular requirement of profit, as an example of a system that produces an incredible range of options and complexity of schemes in response to a relatively simple end goal.

At this point in his argument, Harvey takes a step back from the specifics of individual agency and system dynamics and attempts to go back to basics and ground the potential for revolutionary thought and action in an aspect of species-wide capacity, defining us as an animal with specific
capacities, limitations, and metabolic needs. This abstraction, in my opinion, is an attempt to demystify human beings as somehow locked into a specific form of reproduction. By abstracting us into our commonality with other species, Harvey hits the mental reset button: We are just animals like any other, and we should start from our own specific traits and capacities. He acknowledges the power of historical patterns, but doesn’t want to get stuck thinking there is no way out.

In particular, Harvey highlights the social organization of humans, written language (and memory), the ability to advance technological understanding, and finally, as the most powerful of human capabilities, the ability to adaptively set constraints or rules that can be followed or not followed.

As a result of rule creation within our biologically based limitations, Harvey lays out six options for strategic action: 1) competition and struggle with selective criteria; 2) adaptation and diversification into niches (presumably modeled on an ecosystem model); 3) collaboration, cooperation, and mutual aid (the assumption being that this provides better outcomes then pure competition); 4) environmental transformation; 5) spatial ordering of fixed spaces for specific uses (e.g., defense, transport, communication, sleeping), with mobility between those spaces; and 6) temporal orderings which set up “clocks” in myriad realms (biological, social, economic, cultural). These are not mutually exclusive, but only relatively pure definitions of alternative dominant tactics with which to respond to perceived needs, wants, and dilemmas within human society. Obviously such a statement could and should be critiqued and unpacked, but for my purposes I will move on for now.

Harvey uses capitalism as an example of a system that at first is often thought to be purely competitive, but in actuality requires multiple strategies from among those listed above. For example, when a firm competes with other firms, it can do so successfully only when there is internal cooperation, mutual aid, and fixed systems of communication. Even staunch competitors like airlines will realize the need for cooperation with other firms in many areas, such as submitting to air traffic control requests regarding taxiing and landing, because without this cooperation, no one would be successful. Harvey concludes this section with these reflections:

This illuminates how an alternative to capitalism might begin to be construed. The traditional way of thinking about socialism/communism, for example, is in terms of a total shift from, say, competition to cooperation, collaboration, and mutual aid. This is far too simplistic and restrictive. If capitalism cannot survive without deploying all of the repertoire in some way, then the task for socialism must be to find a different combination of all the elements from within the basic repertoire. This cannot be done by presuming that only one of the elements matters and that the others can be suppressed. Competition, for example, can never be eliminated. But it can be organized differently and with different ends and goals in view. The balance between competition and cooperation can be altered. This has frequently occurred in capitalist history as phases of “excessive competition” alternate.
with phases of strong state regulation. The recent move towards globalization is an example of how a shift in one key element in the repertoire—the production of space—can occur in the struggle to sustain the system (Harvey 2004, 211).

Harvey then concludes by saying that humans can and will act to affect future conditions, those within which their children will have to in turn make decisions and alter their own world, and so forth and so on. By taking a step back, Harvey reminds us of the simple fact that our species was once operating under far different circumstances, but through the gradual accretion of new ideas, technologies, social institutions, and laws, we have managed to build a vastly different future for our species. Whether humanity’s current state is better than the past can be debated, of course. But what Harvey wants to remind us of is the unique power of our species to shape our future.

Our future need not be identical to our present. Surely it will not be, whether we like it or not. Thus, what is left to debate is how, when, and with what agency new ideas—utopian ideas—can be inserted into the dialectic of complex interactions and feedback loops, and what our next concrete steps should be. Harvey rightly points out that humans have now achieved a level of material sophistication that, for better or worse, ensures that it is our own decisions and not random events of nature that will determine our ultimate fate. His reasoned approach and long-range perspective allow us to take up the work of Utopia with a sense of incremental, step-by-step decision making, but with a clear understanding of our final goals.

MICHEL FOUCALUT

My notes on Foucault’s concept of heterotopia are taken from David Harvey’s essays in Spaces of Hope, and a transcript of Foucault’s essay on the subject. Foucault’s concept of heterotopia, however, was introduced by him in 1966 in his book The Order of Things, where he observes:

Utopias afford consolation: although they have no real locality, there is nevertheless a fantastic untroubled region in which they are able to unfold: they open up cities with vast avenues, superbly planned gardens, countries where life is easy, even though the road to them is chimerical. Heterotopias are disturbing, probably because they secretly undermine language. . . . Utopias permit fables and discourse: they run with the very grain of language. . . . [heterotopias] desiccate speech, stop words in their tracks, contest the very possibility of grammar at its source; they dissolve our myths and sterilize the lyricism of our sentences (Foucault 1966, quoted in Harvey 2000, 183).

In his lecture on heterotopias, where he picks up the concept in earnest, Foucault claims that “[u]topias are sites with no real place . . . that have a general relation . . . with real space . . . in a perfected form . . . but in any case . . . are fundamentally unreal spaces” (Foucault 1984, 3). He goes on to define heterotopias, as distinct from utopias,
as “places that do exist . . . formed in the very founding of society—which are something like counter-sites . . . effectively enacted utopia[s] in which the real sites . . . are simultaneously represented, contested, and inverted” (Foucault 1984, 3). One of the characteristics of heterotopias is their ability to juxtapose several spaces or sites “that are in themselves [normally] incompatible” (Foucault 1984, 6). Cinemas and gardens are such spaces: the former projecting a series of fractured three-dimensional worlds against one wall of the theater (Deleuze explains the power of cinema very well), while the latter produces a microcosm of the world inside the “smallest parcel of the world” (Foucault 1984, 6).

Another attribute of heterotopias is that they function at both extremes of possible relationship to the normative space of society. Their role is either to “create a space of illusion that exposes every real space . . . as still more illusory” or, contrariwise, “to create a space that is other . . . as perfect, as meticulous, as well arranged as ours is messy, ill constructed, and jumbled” (8). He surmises that colonies have played this role, and we can immediately bring to mind the Puritan villages: spaces created apart from their motherland as attempts at pure, undefiled Christian utopias. For Foucault, then, heterotopias provide an escape from the “norms and structures” as Harvey labels them, or “the system,” as Jameson would call it. Such a departure allows for new thinking and enables the creation of difference, alteriority, and “the other.”

According to Kevin Hetherington, heterotopias allow us to see an alternative mode of living, or of arranging the elements of life, and as such shows us that the way we’re doing things now is just one possibility, the result of a process that could potentially be altered in the direction of a new social arrangement (Harvey, 184). Foucault lists cemeteries, brothels, and prisons as examples of heterotopias, spaces with logics counter to, but yet embedded within, normative cultural logics. It is noteworthy that the examples Foucault are spaces spaces created from the occult or taboo activities of normative Western society—from the extremes. These are spaces that may exist within the legal territory of a nation-state, but they are not necessarily sanctioned. They are not spaces that a “good” citizen would spend time in.

Foucault suggests, then, that seeking Utopia may not require the invention of an entirely fantastic world, but rather may exist in some germane form within society as presently constituted. The power of Foucault’s claims, in Harvey’s thinking, is that because heterotopias are actual, they combine the social with the spatial, and thus, in accordance with Bachelard’s thinking, they “show us how and in what ways spatial forms might connect radically different social processes and so disrupt the homogeneity to which society typically clings” (Harvey, 185).

But the move from heterotopian example to full-scale project becomes difficult, as one might expect. There is no reason to think that allowing a diverse set of “others” within a hegemonic system will lead to any one of those “others” usurping and inverting the balance, to the point where it itself becomes the hegemonic power.
Harvey points out that real change requires real institutions and material structures, and these in turn require time to flesh themselves out, and once actualized tend to fix in place the systems they emerge from. Because of the effort required to make things real, and the influence of the actual on the virtual, it is difficult and time-consuming to invert the dominant order. It is not impossible, however, as capitalism revealed during the shift from mercantile and commons-based production to industrial production. Harvey rightly points out that the likelihood of success of attempts to make “flexible landscapes and institutions” tends to decrease with time, as the process of creation is also a process of encrustation and reinforcement.

Foucault further complicates the notion of a fixed or circumscribed alternative space by reminding us that it is not just the quantity of space or its internal structuring that produces heterotopia (though both are critical), but also “the form of relations among sites” that is important. The functioning of all spaces, regardless of their heterotopian qualities, increasingly requires complex interactions within a web of more normative spaces (Foucault, 1984). This, in my opinion, will tend to even out heterotopias over time, much in the same way that Australia went from a penal colony to an equal among English-speaking nation-states.

My notes on Roberto Unger are taken entirely from David Harvey’s essays in Spaces of Hope. Harvey puts Unger in line with Popper by noting Unger’s avoidance of absolutist and universalistic claims; instead, Unger focuses on “the next step in a trajectory” (Harvey 2000, 359), instead of defining a total project. Furthermore, Unger does not believe visionary thought is necessarily “perfectionist” (Harvey 2000, 359), but allows room for mistakes and realignments. What is fundamental to Unger, however, is that we must change our “institutional world” if we are to change ourselves (Harvey 2000, 186). And to do that we must “redraw the map of possible and desirable forms of human association, of inventing new models of human association and design new practical arrangements to embody them” (Unger, 1987b, 359, quoted in Harvey, 186). Ultimately these new institutions are aimed at building a “more radically empowered and empowering system of democratic governance” (Harvey 2000, 187). Toward this end, Unger imagines three types of empowerment—allowing for social experimentation; increasing awareness, imagination, and control over institutions; and removing predetermined social hierarchies and roles—and three areas within which this empowerment must become operational: within the government, economic institutions, and underlying constitutional rights (Unger 1987, 363–64).

Unger provides cover for utopian and visionary thought by noting that there will always be criticism awaiting someone who attempts to change current societal conditions: You are going to be deemed either

ROBERTO UNGER
too radical or too tepid. He also sees the self-contradictory nature of those groups who ask for help fixing problems, but then immediately turn around and accuse “the reformer of dogmatically anticipating the future and trying to steal a march on unpredictable circumstance, as if there were no force to Montaigne’s warning that ‘no wind helps him who does not know to what port he sails’” (Unger 1987a, 443; quoted in Harvey, 188). In other words, if you don’t imagine a better future, any and all effort will be wasted.

Harvey levels the same critique at Unger, however, that he does with Lefebvre: There is simply no way to “keep choices endlessly open” while still actually doing anything real. Again, Harvey points out the “failure to recognize that the materialization of anything requires, at least for a time, closure around a particular set of institutional arrangements and a particular spatial form” (Harvey 2000, 188). Harvey’s final critique of Unger is that while the argument to maintain Utopia as an abstraction is understandable, without conceiving of its material “referent” we lose our ability to navigate through even the real options that are afforded to us (Harvey 2000, 189).

FREDERIC JAMESON

These notes are taken from Jameson’s essay “The Politics of Utopia,” written for the New Left Review and published in its January/February 2004 edition. Right away in his essay, Jameson points out that Utopia is a difficult concept to deal with in today’s globalized world because of the schism between the “poverty, unemployment, starvation, squalor, violence and death” of so many, on the one hand, and the “unparalleled wealth, computerized production, [and] scientific and medical discoveries unimaginable a century ago” on the other (Jameson 2004, 35). When these polar opposites are viewed simultaneously, each makes the other seem like either a fantasy or a boring version of a past society. As a result of this dichotomy, “Utopia” has become a code word for “socialism” on the Left and “totalitarianism” on the Right, and thus any scheme that seeks to radically alter existing society will be labeled as utopian by one or the other side. Nevertheless, and in line with many of his contemporaries, Jameson argues that without utopian thinking, we cannot envision an alternative to the current political system. He regards criticism of such thinking as inevitable, and believes that we must accept that and learn to live with it.

Jameson provides two lenses through which to label and understand utopian thought historically. The first is what Jameson calls the “causal” or “root of all evil” analysis. He argues that private property is the point of departure for both Plato and More, both of whom believed that greed must be “repressed by properly utopian laws” (Jameson 2004, 37). This vein of thinking then passed through Proudhon and Henry George to Ezra Pound, among others. But these are not Marxist arguments per se, although it might be tempting to think so, as it seems on the surface logical to equate
greed for money with capitalism. After all, is not the M-C-M equation and the valuation of capital the pinnacle of money for money’s sake? However, Jameson finds an important difference between More’s argument, based as it is on a belief in human nature driving greed, and Marx’s theory, which is based on a structural diagnosis of economic systems. In other words, Marx believes that human nature is not biological, but rather is taught to us as we are educated into a historically specific system. Jameson defends Marx’s structuralist view by adducing Brecht’s argument that “human nature is historical rather than natural, produced by human beings rather than innately inscribed in the genes or DNA” (Jameson 2004, 37).

The second lens Jameson offers is an “institutional” analysis. This is a positivist, or at least constructionist, mode of thinking which seeks Utopia through the rearrangement of daily life and the restructuring of society and its physical and political institutions. Seen through this lens, the individual is anonymous, a statistic: a number in an enumeration of the total society, all of whose members together experience the same “mental pleasures,” as More put it. Jameson doesn’t believe this is necessarily bad:

The boredom or dryness that has been attributed to the utopian text, beginning with More, is thus not a literary drawback nor a serious objection, but a very central strength of the utopian process in general. It reinforces what is sometimes called today democratization or egalitarianism, but that I prefer to call plebeianization: our desubjectification in the utopian political process, the loss of psychic privileges and spiritual private property (Jameson 2004, 40).

Jameson thus divides Utopia into two camps: the root-of-all-evil camp, and the political and social construction camp. He then goes on to reveal the problem with all utopian projects, regardless of whether they attempt to squelch negative human desires or inspire more positive ones through new, perfected institutions. Because Utopia by definition is most often a radical departure from the system it reacts against, utopia cannot (perhaps as a requirement of its purity of conception) have the forethought to realize that its own system may be necessarily usurped in the future.

In utopia, Jameson writes:

Politics is supposed to be over, along with History. Factionalism, parties, subgroups, special interests, must be excluded in the name of the General Will. For the one thing that cannot be challenged or changed is the system itself: and this is in fact the fundamental presupposition of all systems, of democracy fully as much as of communism. You cannot abolish parliamentary representation in a parliamentary system; you cannot decide to go back to free enterprise in a communist one; cooperatives cannot flourish within a capitalist market system; nepotism, inheritance and nomenklatura cannot be tolerated within a society committed
to equality. A social system, in order to continue to function, must include its own built-in immunities: how much the more so, in the case of the system to end all systems? (Jameson 2004, 42, 43)

Jameson just as quickly points out, however, that an open form of politics that not only can imagine its own demise but actively seeks a fluid state is not necessarily excluded from all utopian thinking. It is seemingly implied, in fact, within a subset of utopian thinking; specifically, Kim Robinson’s “town council sessions” and Ernest Callenbach’s “Survivalist Party” meetings. The socialism that many have claimed to be just too difficult, annoying, and time-consuming engenders a continual turning over of arguments and positions in the pursuit of direct democratic rule and consensus. (Jameson 2004, 43).

In short, direct democratic rule may be an exception, because it is a system that presupposes only one thing: namely, that the people who are affected by the outcome of decisions determine at every moment what direction and action will be chosen. Perhaps we can also argue, with Jameson, that such a system implies anything but its own demise— and we can certainly envision the end of direct democracy if a community’s members adopt a new form of government. But perhaps that is Jameson’s point. Group consensus has within its logic the ability to shift into another mode of organization, whereas all other modes lack escape valves enabling the deconstruction and reorganization of their elements. This may be reading too much into Jameson, but it is an interesting problem to consider nevertheless.

Jameson proceeds to explain that this immunity of a system from its own self-destruction becomes embedded in political institutions with the seemingly paradoxical condition of being both “unchangeable and infinitely modifiable.” What he means to say, in my opinion, is that the institutions set up within such a system generate, whether consciously or not, the appearance of hope and reform without ever “modifying the status quo” (Jameson 2004, 44). Jameson purports to show how this works itself out in reality by claiming that the moment when real revolutionary thought is spreading around society is the moment when remedies, in the form of specific, practical programs, emerge from the system’s institutions as solutions to the symptoms, and offers a way out for both parties: the powers that be and the pre-revolutionaries.

Another important point that Jameson makes is that all utopias arise out of an ideological position, and this position is derived largely from class. The upshot of this is that the root-of-all-evil “diagnosis” will also spring from a class position. (Jameson cites Fourier as an example of a utopian who couldn’t extract himself from his petty-bourgeois upbringing.) In the end, Jameson claims, “no matter how comprehensive the trans-class or post-ideological inventory of reality’s flaws and defects, the imagined resolution necessarily remains wedded to this or that ideological perspective” (Jameson 2004, 47). And whatever the ideological position, it can also be seen in the dualities normally associated with Utopia, such as the question of the rural versus urban
context of utopian projects. Today, he says,
the more appropriate question may be
between technology, on the one hand, and an
ecological desire to return to more prehistoric
modes of life. Another duality he raises
is between planning and organic growth:
between the completed picture and the
process-oriented approach (Jameson 2004,
48). And yet another is between asceticism,
in the context of an overburdened planet, and
pleasure, in light of the abundance modern
technology affords. Each outlook, taken as a
singular position, is deeply ideological; the
power of each, according to Jameson, lies
in its ability to critique and lay bare the
ideology of its opposite. So, if these positions
are considered together, we can begin to
understand a more nuanced and even-handed
Utopia. Jameson staunchly avoids the belief
that these opposites can be dialectically
synthesized, however.

Jameson concludes his essay by
following Adorno’s argument that to be truly
faced with Utopia is to be faced with the
removal of the need for self-preservation,
because self-preservation is the instinct we
gain specifically from living in a less than ideal
state. In other words, if everything is given
out fairly and no injustice occurs, then we
have no need to protect ourselves from the
many, or from another individual. And while
this condition sounds desirable—especially
when it obtains equally for all people— in
the specific case, where an individual must
confront not only the “falling away of that
imperious drive towards self-preservation”
but the reality that one confronts upon
experiencing that, the individual faces an
existential crisis. First, we become vulnerable
by losing our capacity for self-preservation,
and second, we lose much of our personality
and personal history—which are, in the
end, based on a class-centered struggle
for survival against the “miseries and the
deformations” of life (Jameson 2004, 52).

What Adorno and Jameson are arguing
is that psychologically we would lose our
way precisely because our cognitive world is
deciphered and meaning produced through
the struggle to survive and compete. Jameson
quite astutely goes on to explain that the joys
and pleasures of life are likely lost along with
the pain. In short, we know happiness only
because we have known sorrow, and vice
versa. Jameson further suggests that the most
extreme forms of self-imposed suffering, such
as addiction, are likewise “the very emblems of
human culture as such, the very supplements
that define us as something other than mere
animals” (Jameson 2004, 53).

In the end, then, what is Jameson’s
claim for Utopia? Based on Marx’s belief
that individual ownership over the means of
production offers the strongest protection
of personal, social, and economic freedom,
Jameson claims that “full employment around
the globe” would be the most radical demand
on the system, one that would transform “the
system beyond recognition” (Jameson 2004,
37). Jameson claims that this transformation
would be necessary because by definition
capitalism cannot succeed under full
employment, as it requires a reserve army
to maintain low wages and prevent inflation.
Jameson concedes that to provide full
employment, the system would already have
to be changed to even allow for such a state to exist. He identifies this state of affairs as constituting the gap between the real and the imaginary. Jameson then avers that the major ills and pathologies of current nations are the result of not being able to fully employ or utilize the “productiveness of all [their] citizens” (Jameson 2004, 28). So, in short, human nature degrades when it is not fully operationalized through work.

Ultimately, Jameson believes that the condition of “social ferment” within an “unchangeable system” provides a space for utopian thinking and dreaming. When it is most clear that working within the system cannot fix the ills it is producing, a completely new direction must be marked out, and so wholesale, system-altering solutions are conceived of (Jameson 2004, 45). Writing in 2004, Jameson asks if we are not in such a moment. Is there really any alternative within capitalism to solve the problems presented by neoliberalism? And, to put it in a positive form, can we provide every person with meaningful work while still in a fundamentally capitalist system? Perhaps better asked, can capitalism provide its benefits—namely, the active progress of technology and invention (these are my words)—while simultaneously mitigating its social externalities (as Bourdieu would put it)? Was Margaret Thatcher right in insisting that capitalism is simply the only option? Can we not invent something better?

PIERRE BOURDIEU

Pierre Bourdieu gave an acceptance speech for the Ernst Bloch Preis der Stadt Ludwigshafen on November 22, 1997. These notes are taken from that speech. Bourdieu situates his remarks by explaining his current thoughts on neoliberalism, as an advanced form of “undisguised, unrestrained capitalism” which seeks a social world “written in economic language” (Bourdieu 1997, 125). Bourdieu claims that Marx’s fetishism of productive forces is also found in the neoliberalism of today, a fatalism which proffers itself as an “uncrossable horizon of thought—the end of critical utopias” (126). He goes on to summarize neoliberalism as follows:

In fact, this philosophy knows and recognizes no purpose but the ever-increasing creation of wealth and, more secretly, its concentration in the hands of a small privileged minority; and it therefore leads to a combat by every means, including the destruction of the environment and human sacrifice, against any obstacle to the maximization of profit (Bourdieu 1997, 126).

This sentiment is not new, but it is a pretty stark formulation of its premises. Bourdieu uses Bloch as a starting point for intellectuals attempting to reignite utopian thinking. There are three points Bourdieu makes via Bloch: First, utopia must be defined with awareness of the real possibilities of its given epoch (both social and scientific, I imagine); second, it must go beyond “platitudes” and “facts,” but not descend into pure wishful thinking; and third, it must avoid “objectivist automatism.
(Marxism), which believes the contradictions of society will self-revolutionize" (Bourdieu 1997, 127).

In light of this, Bourdieu argues that to counteract neoliberal arguments, utopian thinking must be backed by scientific thinking and objective needs, which are aimed at transforming the existing order, but within its "objective processes" (Bourdieu 1997, 128).

What is needed, therefore, is not "common European programmes," but rather "institutions" (Bourdieu 1997, 128). Toward this end, Bourdieu argues that there are four areas which require intellectual contributions: the social state, unifying trade unions, unifying educational systems, and clarity between economic and social policies. The last project is the most important to Bourdieu, and he believes it requires, as stated above, the rational and rigorous understanding of the "social effects and costs of economic policy" (Bourdieu 1997, 129). In the end he calls for a tracking down of the primary causes of social misery, which he believes almost always leads back to economic decisions. And after this, he wants to project a sort of economic externality onto the real costs of business, something akin to the environmental externalities more and more accepted as necessary for sustainable business. He wants to rationalize and "prove" the "social costs of economic violence," and to begin turning the tide of neoliberalism toward "an economics of well-being."

Ultimately Bourdieu is working well within the confines of the system—perhaps in part because most European countries are agreed upon the basic set of social welfare programs. Therefore, it is more an issue of coordination and successful implementation. Regardless of what Bourdieu claims, neoliberalism in America and Europe differ because of the political control exerted on the respective governments. What he does propose of real consequence, however, is the idea of social externalities. It seems, however, that this will be incredibly difficult to define and agree upon. Pollution counts and toxicity levels, while debatable, are at least countable; but it would seem that many social ills and benefits are simply not measurable. Happiness, justice, fairness, equity, relative health outcomes—all are deeply subjective. Nevertheless, Bourdieu's insistence on scientific thinking is important, as he does understand one critical feature of current society: the need to instrumentalize data, both big and small, into actionable, statistically important evidence.
Bibliography

3.1 Utopian Theories

The diagram above shows the projects researched and classifies them according to multiple criteria. An X designates a primary function or characteristics of the project or community, whereas a y designates a secondary, or less critical aspect of the community. Some communities, such as the Kibbutz, have changed over time. In these cases I have registered the current conditions.

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3.2 Utopian Projects

INTRODUCTION

Interspersed throughout the history of theoretical or critical utopian thinking are various projects, whether realized or left in a state of abstraction, which attempt to go beyond the words of the theorists of the previous chapter. These projects develop their concepts into formal-spatial realities, whether built or unbuilt. If Harvey noted the benefit of the science-fiction-based utopian novel because of its understanding of time-based dynamics, then these projects work the other half of the equation: They deal in space. Of course, inherent in space is movement through it from place to place, and thus time is also implicit in spatial design; but the visualization of the built environment offers something that texts cannot: both an intuitive litmus-test response, and the ability to envision yourself and your life-world within these utopian contexts. Utopian projects thereby let us see the gap between the textual (dynamic) and the physical (static/fixed, with dynamics added).

Lefebvre writes very eloquently about concepts of auto-gestation (self-management), about testing ideas on the ground, and of re-envisioning everyday life. But what does this actually look like? How do these concepts operate in the city? And do such actions require new forms of architecture and urban design? It is a strong statement to claim that these radical concepts can be operationalized within the same city that capitalism has borne. But without some visual cues, it is impossible to know what this would really look like. This is where the physical design enters into the process. Furthermore, the utopian design project cannot hide beyond language and discourse. It is revealed to anyone to see, for better or worse. And lastly and of course most importantly, if any theoretical utopian idea is to be realized and not just written about, it must, as Ernst Bloch reminds us, go through the process from concept (utopian theory), to design (utopian project), to built environment (utopian environment).
It is not so clear, however, why studying former attempts at utopian projects (case studies) is beneficial to a new utopian project. Does it matter what has come before? Can’t you go straight from theory, whatever that might be, straight to design, without passing through a study of past attempts? I claim that yes, it does matter, and applies to both unrealized and realized utopian projects. Regarding the former, just because a Utopia is un-built does not mean it is unserious, nor that it hasn’t been well thought out. It can still offer both an inspiration and a test or foil vis-à-vis one’s own thinking, even if it was not built. Fourier, for example, made a significant effort in designing the architecture of the Phalanstery—extending to such details as dumbwaiters for each table, so that food could be served more efficiently from the basement kitchen.

In some cases, these un-built projects may be better thought out than much of the built environment we interact with day-to-day, which was built for purposes other than furthering radical social change. What makes these projects appear unserious, if anything, is their belief or wish that human relations—perhaps even human nature—can be altered through a rejuvenated or new architecture or spatial planning. I would claim that this points to the problem with utopian projects. It is not that they were never fully tested as utopian environments; their feasibility as buildable physical projects is not, in the end, the real test. The real test comes when socioeconomic forms inhabit those spaces—that is, their social believability: how they do or do not support the new form of society that is hoped for. In this way, I would claim that physical design is only part of the utopian project. The more critical aspects are the formulation of new social and economic institutions.

Besides being quite serious efforts, many un-built utopias are highly prescient in their forecasting of future societal organization. Frank Lloyd Wright’s Broadacre City is an incredibly powerful image of a highly dispersed American suburban condition. While Broadacre included many features that were not widely actualized in American suburbia, such as localized small-scale production, farming, and cooperatives, Wright did foresee the power of the automobile and an interstate highway system to radically push the American population out into the former hinterland.

The study of utopian environments (built projects) may be dismissed as not relevant to a purely utopian project like my thesis. But understanding the realities and nuances of social, economic, political, and material forces and energy interacting in space is still valuable. What utopian project case studies offer in terms of purity of thought and concept, the utopian environment case studies offer in completeness and failure testing. For example, if one looks at Pullman, Indiana, for only a few years, the conclusion drawn might be that the factory town is a viable option. But after seeing what happens when demand for the single-commodity town’s only source of revenue drops, one realizes that this is not a long-term option. All factory towns fail eventually—Detroit is the most extreme example. Therefore, even though my project is not going to be built, looking at real utopias
and pointing to those aspects that made them fail or succeed, and at what points those failures occurred, will give my utopian project a more vivid and believable dynamics.

Finally, a study of both built and unbuilt Utopias enables an understanding of how the social and economic relates to the formal in a more general way. What I mean to say here is that the formally mundane and simple can hold within it radical and successful (repeating) forms of socioeconomic organization and socialization. The Israeli kibbutz is by far the best example of this. These communities successfully adapted to shifts in external economic conditions (industrialization, advanced capitalism) as well as internal social changes (desires for private property or family cohesion), while continuing to reside within relatively modest and consistent village forms. This is not to suggest that form doesn’t matter; it certainly does, and the kibbutz has a very specific typology unto itself relating to its socioeconomic form. The point is, rather, that as designers we should not mistake the role of both architectural and urban form within the total societal process. Form is critical to the overall success of a society’s reproduction, but it cannot drive that reproduction, as the modernist movement proposed. So the kibbutz reminds us of this dual reality: The successful layout of a town impacts the community that lives within it, but the very definition of that success predates the building of the town—so the clearer and more well developed the image of the desired way of life, the more effective the planning process can be.

The case studies here are set forth as individual, isolated descriptions. This is done with a mind to their expandability in future research, to facilitate adding more case studies as I continue work on the project. The concluding section should be seen as the synthesis of the knowledge gained from these case studies. The projects discussed run the gamut from industrial communities with every type of private and public space coordinated, to the endlessly repeating suburban or agricultural meshes. I have selected projects with range and heterogeneity in mind so as to provide a broader context for my own thesis.

In many ways it might have been smarter to decide exactly what I wanted to design and then consider only those most proximate utopian case studies. But such a process would, in my opinion, negate the very purpose of research: specifically, to ground thinking in a resilient and flexible understanding of the general state-space of a genre. As design proceeds, more focused research can certainly augment, or give hints as to design direction; but building a platform from which to orient the project before it starts will likely keep the design process from heading in the wrong direction. In the end, as stated above, the purpose of these case studies is to understand the connections, both loose and tight, between the human and metabolic forces of society and their formal, infrastructural, and spatial homes.
AGRONICA
BY MARIO BRANZI

Introduction
The projects within Andrea Branzi’s book Weak and Diffuse Modernity propose a new “non-figurative architecture” in response to the shift from the concentrated forms of twentieth-century city building to the “weak and diffuse current one” (Branzi 2006, 9). Branzi works outside the normative boundaries of architecture as symbolic and figurative form, responding directly to functionality with a kit of parts solutions. He is claiming that because society has shifted to a network mode that responds to more rapidly updating information and trends, designers must respond in kind with an architecture just as flexible and dynamic (Branzi 2006, 10). In support of this concept, Agronica lays down a grid of columns which allows rapid deployment—and hence removal or redeployment—of hovering, Miesian-like work pavilions. These pavilions are open-air in the model, but would presumably be enclosed in reality.

Partial Unity
This system of columns and pavilions is meant to work in and around existing conditions; hence its label as a “partial unity” (Branzi 2006, 134). It is not meant to replace what already exists, nor to become a fixed entity; instead, it hovers and light attaches to the heavy stone medieval cores—and the only slightly less heavy glass, steel, and concrete twentieth-century city surrounding it. This system abandons totalizing forms and the historic correlation between function type and urban location or morphology. The system locates objects based on constantly changing needs and conditions—that is, on the dynamics of an information-based economy. Branzi’s formal tactic is a way to expand a city’s operations in line with the new network society, which does not require—and, Branzi seems to be claiming, is actively hindered by—fixed urban form. Agronica’s haphazardness correlates with an overlay of multiple program types, which extends even to cows. The flexibility of the architectural form is not merely a symbolic association, however; its mutability is driven directly by the dynamics of the human activities acting within these spaces, which can occur anywhere, anytime, via the internet. As Branzi claims: “The functions and work carried out in an office building, university, or industrial laboratory could be carried out in a group of farmhouses or a thermoelectric plant no longer in use” (Branzi 2006, 134). Branzi uses this new work capability to expand our vision of what our spaces of everyday life could be like. His personal preference is to lay this dynamic socioeconomic system on top of an agricultural field. No doubt it could be overlaid on other grounds or in other conditions.

Seven Theses
Branzi affirms the following seven theses in response to technological and societal shifts:

1. Separation of form and technology.
2. There no longer exists a correspondence
between construction technologies and buildings’ form (urban and in use).

3. Though a tight relationship existed between mechanics and mechanical objects, today there no longer exists a direct relationship between electronics and the form of electronic products.

4. Separation of form and function.

5. Electronic instrumentation allows for the same functions to be carried out everywhere.


7. The function of places (home, office, factory) no longer corresponds to a visible stylistic code, but to a software that changes places’ use—in other words, a network program that specializes activities in real time (Branzi 2006, 134–35).

Notes on Agriculture

The agricultural emphasis—or literal agricultural field over which other functions are laid—could induce a dismissive reading of Agronica in a period when dense, third-world mega-cities, and global warming caused by wasteful and too widely dispersed systems, are the key touchstones of twenty-first-century planning. In many parts of Europe, however, and especially in the United States, suburban growth still outpaces urban growth (Sanburn and Kedmey 2015). Furthermore, Branzi produced this project in 1995, before the latest generation of LED aero- and hydroponics was invented, but still recognized that agriculture was becoming more and more “an extremely advanced productive system” (Branzi, 138) My point here is that Branzi forecast a new pattern of programmatic flexibility and anywhereness, and hence the possible consolidation of agriculture with all others, before the requisite agricultural technologies were perhaps ready. Perhaps this was intentional, and the landscape provides an important backdrop. Nevertheless, with current LED technologies that allow for one hundred times more productive density per square foot than normal “industrial farming,” Branzi’s project could be reconsidered and redesigned to make a new project which treats agriculture as an equally “flexible” component.

Critique of the Relational Economy

One question raised by Agronica is that if everything is moving around, what kind of collocation can actually be formed beyond temporary, and likely unproductive, interactions? In contrast to what Agronica appears to propose, the most innovative areas in the United States are long-established centers with complex networks which have grown over time (Berger and Economy 2013). Silicon Valley, the most well known such, has well-established universities, venture capital firms, and both older and newly formed companies—and this dynamism is the result of fixed nodes, not in opposition to them. Branzi’s project, then, would be successful only as part of another, more established system, one that would become more effective with the ability to expand or contract around the periphery of the existing one. Although Agronica, by necessity, works around existing structures, it is less clear that Branzi understands the inherent need for them, not just that they happen to be there. His diagrams for the Eindhoven Masterplan suggest that he recognizes the real need, at least, for infrastructure, but he doesn’t come out and say as much (Branzi 2006, 42).

Furthermore, Branzi’s lightweight model makes it appear easy to achieve. In reality,
Image 1, 2 - The flexibility of Agronica is shown as the grided poles can accept multiple forms of coverings, walls, and flooring systems, as well communication devices, etc.

Image 3, 4 - The ability of animals to freely roam within the total system indicates the flexibility and softness of Agronica, a place where a rigid infrastructure, temporary but programmed spaces, and unprogrammed instinctual and purely biological logics can coexist. In a sense, this brings back a more medieval life, where multiple levels of existence are overlaid, something contrary to the exclusionary zoning of early 20th century planning.

Image Credit: http://www.abitare.it/it/wp-content/uploads/2013/01/FC9-DomusAcademy-agronica94-95.jpg
in the information age, most advanced production systems require extremely sophisticated equipment, which requires significant planning. They cannot just be picked up and moved around, even given examples of pop-up or temporary manufacturing. Therefore, without more rigorous analysis of the elements he is actually proposing, it is difficult to know how much of Branzi’s project is purely for self-enjoyment, and how much should be taken seriously as a potential mode of living and working. Stated more critically, is Branzi just using current trends as fodder for designs he finds interesting, or does he actually have an agenda?

THE EINDHOVEN MASTERPLAN
BY MARIO BRANZI

Introduction
The Eindhoven Masterplan was driven by the gradual move of Philips Industries headquarters to a campus site outside of the city center. The vacated space needed to be reconsidered, and Branzi’s team did so in light of the new media- and digital-based economy. Branzi’s first step was to maintain the autonomous nature and clean figure of the Philips Strip. This allowed the design team to regard the space as an experimental territory in terms of both architectural typologies and normative zoning and programming (Branzi 2006, 40).

Multiple Mobility Grids = Tartan
The first step in the proposal, and the most permanent structure, is the building of a tartan pattern of individually scaled tram, walking, and biking grids. Car and truck roads were eschewed in favor of a pedestrian-friendly and human-scale mobility system. Immediately, however, we notice how far buildings are positioned from each other, and we have to wonder how much use these mobility systems are getting, and how much time it would take to walk between modes of transit. At the same time, however, the Eindhoven plan foresees a move away from mobility-based monofunctional zoning, toward multi-use, close-proximity programming that doesn’t require continual movement between distant areas of a city: one for living, one for working, and one for consumption and shopping.

Network, Service Economy
On top of the grid, Branzi’s team proposes that multiple programs can layer on top of each other “indifferently” in a newly formed post-industrial space (Branzi, 40). This is partly, as in Agronica, the result of the sitelessness of the new economy, which in turn comes by way of replacing the heavy and fixed industrial infrastructures of rail and large factories with the lightweight, if not entirely materialness infrastructures of the Internet and digital production. In the end, the city they conceive of is for a young, diffuse, entrepreneurial class that requires social mixing and amenities more than anything else. Furthermore, the wealth this class creates is no longer physical but social and virtual, so its exportation no longer requires packing
and shipping, just beaming down a fiber-optic cable.

Ultimately the project rests on the belief that the new economy is both more mobile and more complex than the old economy of making widgets as cheaply as possible. Branzi understood that human interaction between diverse types of intellectual workers is necessary to be competitive in the marketplace. He also understood, though this was not difficult to project, that all of the spaces of the new economy are equally benign—so the separation of work, life, and leisure is not necessary. And because these spaces shre more similarities than factory-house spatial forms, they can be intermixed, overlaid, and more heterogeneously related.

Critique
Curiously, as with Agronica, the background for this project is green landscapes, as well as ill-defined “cultural and critical information” producible only in an “urban market.” It is unclear how Branzi’s team intend to produce an “urban market” condition on top of this green carpet. In my opinion, the scattered programming is needed to convince us representationally of the hyperflexibility. Instead of showing how this system might be denser, and thus produce even more networking, while still maintaining its flexibility, they have retained the static representation form of the model. But if they are going to remove cars and roads and replace them with trams and bike paths, the density must be believable—and it is not. If this were to become a real city, it would immediately look completely different. Businesses would be clustered around and on top of the best tram line intersections.

Furthermore, if flexibility and adaptability are the touchstones of the network society, at least show us the means of attaining this flexibility: A column grid may not be enough. Finally, Branzi conflates the loss of production jobs with the rise of innovative, service sector jobs. We need look no farther than Germany to see that these are not mutually exclusive. A network society does not rule out production: In fact, cloud manufacturing is the next generation of production.

PHALANX AND PHALANSTERY
CHARLES FOURIER

Introduction
Charles Fourier rejected Robert Owen’s belief that human nature could be shaped by the conditions and institutions an individual grew up within. Fourier believed, instead, that humans had natural instincts and ingrained natures which should in turn become the basis of any endeavor to harmoniously organize society. Fourier called this the “theory of passional attraction” (Michael and Tod 1978, 88). A passion, for Fourier, “is the drive that is given to us by nature prior to any reflection, and [that] persists despite the opposition of reason, duty, or prejudice” (Michael and Tod 1978, 88). There were twelve distinct passions in Fourier’s theory—and he believed that the inability to satisfy one’s passions resulted in emotional poverty, and in turn
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Drawing of Phalanstery
Image Credit: http://upload.wikimedia.org/wikipedia/commons/B/Bd/Phalanst%C3%A8re.jpg

Animation of Imagined Phalanstery
would lead to societal chaos and disorder. His solution was a community in which all passions could be completely satisfied (Michael and Tod 1978, 88), and all workers received high wages (Fourier, Beecher, and Bienvenu 1971). This is, I would claim, the goal of all utopian projects: to work, be financially successful, and enjoy one's self.

To achieve balance among the 810 types of personalities produced by the twelve passions, Fourier devised combinations of working and living arrangements which averaged out the passions so as to arrive at some equilibrium. This balance of passions then multiplied into sixteen tribes, thirty-two choirs, and a single Phalanx of 1,620 people (Michael and Tod 1978, 90).

In this section I have combined the theoretical work by Fourier with examples of real though short-lived attempts at achieving a Phalanx. I include them here because of their curious relationship to the work of Fourier. Though parts of these instantiated communes can be linked to Fourier's work, it appears that he was more of an inspiration then a blueprint. Indeed his major social theory and physical design were either left out completely, or else significantly reduced to the point of banality.

Designing Utopia: The Ideal Building

No existing architecture would be adequate for the housing and harmonious living required of the Phalanx. The Phalanstery, or “grand hotel,” was a four-story building with three arms, modeled after the palace at Versailles. Fourier’s design was connected via interior streets, roughly twenty feet wide and three stories high, called “street galleries” or “galleries of association.” These were similar to the arcades in Paris and the passages between houses in the silk workers district in Lyon and thus Fourier was a keen observer of how existing typologies could be re-purposed for his own social agenda (Hayden 1976, 150). In Fourier’s words, the galleries allowed members to “pass through the workshops, stables, shops, ballrooms, banquet and assembly halls . . . in January without knowing whether it is windy, hot or cold’ (Michael and Tod 1978, 91). The galleries, along with courtyards defined by the two wings, were meant to encourage interaction and spontaneity between members as they went about their daily lives, walking to and from the various domestic, work, and leisure spaces (Hayden 1976, 151).

Indeed, with 1,620 people living within a single enormous building, it would seem that crossing paths would be all but guaranteed. While class relations were not intended, differences in personal wealth seemed inevitable, and were therefore planned for by Fourier. Housing units were stratified, with larger apartments on the top floor and smaller apartments on lower floors. (Differences in wealth either existed when the commune formed, or resulted from people being left free to work more or less as they saw fit.)

Fourier devoted chapters describing the built environment for his community and its architectural details, which included the most modern heating and ventilation systems, trap doors for tables enabling people being served food from below, and many others. His greatest and often most overlooked contribution to the physical design of a Utopia,
Hayden claims, was the notion of sociopetal spaces, which encouraged social interaction (Hayden 1976, 150–52). I would agree with this, both because other communities such as the Oneida produced continuous buildings and because Fourier’s overall form is modeled after Verssaie. The key aspects of Fourier’s architecture are those that induce human interaction: the open and continuous hallway, the ability to look out on this hallway from multiple floors and different space types, and the separation of functions, which induced more circulation as members moved about throughout the day between living, working, eating, and entertainment spaces.

Real Attempts at the Phalanx

While roughly thirty communities were formed in the United States in response to Fourier’s writings—more specifically, to writings and translations by Albert Brisbane published in the New York Tribune—two
WISCONSIN PHALANX.

OFFICERS.

PRESIDENT—WARREN CHASE,
Vice President—JACOB BECKWITH,
SECRETARY—LESTER ROUNDS,
Treasurer—JAMES STUART,

ACT OF INCORPORATION.

Be it enacted by the Council and House of Representatives of the Territory of Wisconsin:

SECTION 1. That Warren Chase, Uriel Farmin, Lester Rounds, Jacob Beckwith, Laban Stillwell, and William Dunham, and all others who shall become associated with them as members, shall be, and they are hereby declared to be a body corporate and politic, to be known and designated as the Wisconsin Phalanx; and such corporation, are hereby declared capable of suing and being sued, answering and being answered unto, pleading and being impleaded, defending and being defended, in all courts and places, in all suits, actions, matters and causes whatever. And said corporation shall have a continued and perpetual succession, and have power to make a common seal and change the same at pleasure.

SEC. 2. The said corporation shall have power to own and hold real estate and personal property in joint stock, to purchase and transfer property real or personal at pleasure, using the common seal and signature of the corporation. Said no effectual until the council herein mentioned shall have voted the Wisconsin Phalanx, and as such corporation, are hereby declared capable of suing and being sued, answering and being answered unto, pleading and being impleaded, defending and being defended, in all courts and places, in all suits, actions, matters and causes whatever. And said corporation shall have a continued and perpetual succession, and have power to make a common seal and change the same at pleasure.

SEC. 3. The said corporation shall be located in the township of Ceresco, in the county of Fond du Lac, in which town the business operations of the corporation shall at all times be restricted. Provided, however, that nothing herein contained shall be so construed as to prohibit the corporation from owning and occupying timbered or meadow lands in any other town: and Provided further, that the quantity of land held by said corporation shall never exceed forty acres to each person belonging thereto.

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SEC. 5. The corporation, or the officers thereof, shall have no power to contract any debt in their corporate name, or by virtue of this act to issue any notes or scripts, or evidences of debt whatever: and if said corporation or its board of managers shall contract or assume to contract any debt in the name of said corporation, each individual member thereof shall be liable to pay such debt.

SEC. 6. Warren Chase, Lester Rounds, and Uriel Farmin are hereby authorized and empowered to open books and receive subscriptions for stock in said corporation, on the third Monday in February, A. D. 1843, at the house of Lester Rounds, in the town of Ceresco, in the county of Fond du Lac, W. T., and to continue open said books at such times and places as they shall deem proper, until the council herein mentioned shall be elected; immediately after which they shall deliver said books and subscriptions to the said council. No subscriptions for stock shall be entered upon the books without the consent of all persons authorized to open said books, while the same are in their possession. All subscriptions for stock, not paid on or before the time designated for the payment of the same, shall be forfeited.
SEC. 7. The books of said corporation shall be open at all times for inspection, by any member or stockholder of the corporation, to all persons desiring to inspect them. The stock in said corporation owned by any member or stockholder shall be at all times liable to attachment and execution for the private debts of such member or stockholder, in the same manner as is provided in sections 105, 106, and 107 of an act concerning judgments and executions. And section 107 of said act shall apply in all particulars to the corporation created by this act, and to its officers.

SEC. 8. The first meeting of said corporation shall be held at the house of Lester Rounds in the town of Cereseo, county of Fond du Lac, on the first Monday of April, A. D. 1846, at nine o'clock, A. M.; which meeting shall proceed to choose a chairman and secretary of said meeting, after which they shall proceed to elect by ballot the following officers: (a majority of votes being necessary for a choice) one president, one vice president, one secretary, one treasurer, and nine councilmen. The president and vice president shall be ex-officio members of the council. Said officers shall hold their respective offices until the second Monday of December following, and until others shall be elected to fill their places, unless sooner removed by the council as hereinafter prescribed.

SEC. 9. There shall be an annual meeting of the stockholders and members of said corporation held on the second Monday of December in each year, in the town of Cereseo, at such place as the council shall determine, for the election of officers to fill the places of those whose terms of office expire on the same day; said meeting shall continue from one to ten days until such officers are elected. Every male member and stockholder over twenty-one years of age, present or absent, shall at all times be entitled to vote, in person or by proxy, in the election of officers; but in no other case shall a member or stockholder vote by proxy. The term of office of each officer shall expire on the second Monday of December, in each year, or as soon thereafter as another shall be elected to fill his place.

SEC. 10. A person may be a stockholder without being a member, or a member without being a stockholder.

SEC. 11. It shall be the duty of the President to preside at all meetings of the members or stockholders, to sign all papers and documents for the Phalanx, to make out and present at each annual meeting of the corporation a general statement of the affairs of the Phalanx, and to decide all questions submitted to the members and stockholders of the corporation by any vote or at the request of any member or stockholder.

SEC. 12. The vice president shall be president of the council, and in the absence or disability of the president, shall perform all the duties devolving upon him, in which case the council will elect a president pro tem.

SEC. 13. It shall be the duty of the Secretary to keep all records, books and papers for the Phalanx and council, and transact such other business as the corporation or council may direct.

SEC. 14. It shall be the duty of the treasurer to receive, keep, disburse, and pay off all monies belonging to the corporation, pursuant to instructions from the council, and to keep an account of all monies received and paid out, and furnish a copy of the same to the secretary, weekly. Before entering upon the duties of his office he shall execute a bond to the corporation, with sufficient sureties, to be approved of by the council, in such sum as they shall deem proper. Provided always, That said rules, regulations, and by-laws shall be approved by a majority of the members; and provided also, That said rules, regulations, and by-laws shall in no way conflict with the provisions of this act, or with the laws of this Territory. The council shall have power to remove the secretary or treasurer, or any member of their board, by a vote of three-fourths of all the members composing the board, for neglect or mismanagement of his official duties. The council shall, in case of such removal, call a meeting of the members and stockholders to fill the vacancy occasioned by such removal.

SEC. 15. The president, vice president, and nine councilmen shall form a board of managers, two-thirds of which shall form a quorum for the transaction of business, the council shall receive and determine upon all applications for stock, and no person shall be admitted to become a member or stockholder, without the consent of all composing the board of managers. The council shall determine and arrange all business for the corporation, both financial and industrial, and shall have power to make such rules, regulations, and by-laws for the government of the members as they may deem proper. Provided always, That said rules, regulations, and by-laws shall be approved by a majority of the members; and provided also, That said rules, regulations, and by-laws shall in no way conflict with the provisions of this act, or with the laws of this Territory. The council shall have power to remove the secretary or treasurer, or any member of their board, by a vote of three-fourths of all the members composing the board, for neglect or mismanagement of his official duties. The council shall, in case of such removal, call a meeting of the members and stockholders to fill the vacancy occasioned by such removal.

SEC. 16. There shall be annual meetings of the members and stockholders on the first Monday of December of each year, at which time a settlement shall be made with each member; and to prepare for which meeting, the council shall make or cause to be made an accurate appraisement of all property, real and personal, belonging to the Phalanx, and the said appraisement shall exceed the cost and last appraisement of said property, the increase shall be divided as follows: one-fourth shall be credited as a dividend to stock in proportion to the time such stock has been paid since the last appraisal; the remaining three-fourths shall be credited to stock in such manner as the by-laws shall determine, but the kind of payment shall be alike to all. It shall be the duty of the council to transact all business of the corporation, not otherwise provided for.
SEC. 17. The council shall establish a public school in which shall be taught all the different branches of science, usually taught in the common schools of the Territory, which school shall be open and free to the children of all the members of the corporation, and shall be continued nine months in each year. All teachers of any art or science except those hereinafter excepted, shall be paid as follows, viz: three-fourths of the amount shall be deducted annually from the amount credited to capital, and one-fourth from the amount credited to labor, previous to the individual settlement with the members and stockholders.

SEC. 18. There shall always be a free toleration of religious opinions, and every member shall be protected in his or her religious belief, and no member of the corporation shall ever be taxed without his or her consent, for the support of any minister or teacher of religion.

SEC. 19. This act may be altered, amended, or repealed at any time by the legislature of the Territory of Wisconsin.

SEC. 20. This act shall take effect from and after its passage.

APPROVED, February 6, 1845.

BY LAWS.

SECTION 1. No officer of the Corporation shall receive a greater compensation for time devoted to his official duties than is paid for the same number of hours in the class of usefulness.

SEC. 2. The members shall be divided into two or more series, and each series shall elect a chairman, who shall preside at its meetings, and have a general care over the property and tools pertaining to that series, and not in the care of groups, subject at all times to the direction of the council or series. He may call meetings of the series whenever he may deem proper by sufficient notice to its members of the time and place.

SEC. 3. It shall be the duty of the foreman of each group to direct the labor of the group, and to keep a book and credit each person belonging to his group in hours every night with the relative amount of labor performed, making as near as possible the ordinary labor of a healthy person in that business the standard. If any person shall leave the group, or refuse or neglect to follow the direction of the foreman (unless excused by the group) he shall not receive any credit for labor done contrary to said direction.

SEC. 4. The foreman of each group shall publicly announce on Saturday night of each week in a meeting of the corporation held for that purpose, the daily amount of credit given to each member of his group. Should any member be dissatisfied with the amount of credit, he shall make his appeal to his group, whose decision shall be final. If no objection be made the books shall be given to the secretary, and he shall credit the same on a book kept for that purpose.

SEC. 5. The series shall form groups for the transaction of business, and nominate a foreman for each, to be approved by the group, shall designate the number to compose each group, and give the foreman such instruction respecting his business, as they may deem proper, shall appoint persons to perform jobs of work not requiring groups, and to keep the time spent in such work, shall determine the manner of performing such work as is ordered to be done by the council.

SEC. 6. The chairman of the series shall keep an account of, and report all time spent in his series not performed by groups, or persons appointed by the series to perform work, in the same manner as the several foremen keep and report time.

SEC. 7. It shall be the duty of each foreman to have charge and take care of all tools belonging to and used by his group, and to have especial care of all property raised or created by his group subject to the direction of the council or series. He shall have power to call out the members of his group at any time to secure or improve the products of the labor of his group. He shall not be considered released from the duties of his office until the property created by his group is secure and ready for use, unless he be released by his group, or unless he resign his office to the series to which he belongs.

SEC. 8. All labor shall be credited in hours, and shall be classed on a scale of figures ranging from 5 to 25. Each kind of labor to be classed by the council.

SEC. 9. The three-fourths of the product of the Phalanx due labor annually, shall be divided as follows: four dollars from every one hundred dollars shall be deducted and set apart, to be appropriated as a reward to the members who have been engaged in the industrial department, as near as can be according to the skill, care, attention, industry and punctuality, manifested in producing and securing, raising and protecting the property of the Phalanx.

On the third Monday of November in each year, six persons shall be elected by the members of the Phalanx at a meeting held for that purpose, three from the agricultural and three from the mechanical series, who together with the President (as their chairman) shall form a board to award the several amounts to the different members as above, and report their doings to a meeting of the members to be held on the last Monday of November for that purpose. Each award shall be presented to the meeting for their approval or rejection. If approved it shall be credited in the settle-
ment. If all or any part of any award shall not be approved by the meeting, the meeting shall have power to award the same to other persons, or return it to the other part of the product, and with that divided to all the members according to the amount of time credited in hours, after deducting the time spent in board, &c.

Sec. 10. All unnecessary labor shall be suspended on the Sabbath or first day of the week.

Sec. 11. Using ardent spirits as a beverage, and keeping them and allowing others to use them as a beverage, gambling, profane swearing, vulgar language, licentiousness, personal abuse of all or any of the members of the corporation, cursing, &c., and tattling, indolence, abuse of cattle or horses, hunting or fishing on the first day of the week, shall be deemed misdemeanors, and shall be punishable by reprimand or expulsion.

Sec. 12. Whenever the President shall be notified in writing, that any member has violated the act of incorporation, or any of the by laws or ordinances of the incorporation, he shall lay the subject before the next meeting of the council. If the council, after due examination of the case, shall order further proceedings to be held, the president shall call a meeting of the resident members of the corporation by a proper notice, stating the object of said meeting. In said meeting the whole subject may be discussed. The question shall be put in the following manner: Shall the subject be indefinitely postponed? If decided in the affirmative by a majority, it shall be deemed ended. But if decided in the negative by a majority, the question shall then be put in the following manner: Shall (naming the person) be expelled from the corporation? On this question the members shall vote by ayes and nays. If those voting in the affirmative be two-thirds of the resident male members over twenty-one years of age, he or she shall be considered expelled, and shall be notified by the president that he or she is no longer a member of the corporation. After which the council may take such further action in the case as they may deem proper. If those voting in the affirmative be not two-thirds of the voters, the question shall then be put in the following manner: Shall (naming the person) be publicly reprimanded? If a majority decide in the affirmative, then the president shall publicly reprimand such person. But if a majority decide in the negative the subject shall be deemed ended.

Sec. 13. All meetings of the council on business, shall be held in public, and open to all members of the corporation.

Sec. 14. The corporation shall extend to such families as choose to board themselves such credits in provisions as shall place them on equal footing with those who board at the public table.

Sec. 15. Every stockholder shall balance his or her account at the December annual settlement (if a balance be found against him or her) by transferring his or her stock in a sufficient amount to balance said account, unless otherwise ordered by the council.

Sec. 16. Any officer of the corporation shall resign his office on being requested so to do by a majority of the resident members who are voters.
communities in particular, one in New Jersey and one in Wisconsin, were particularly successful. The New Jersey Phalanx was largely destroyed by fire twelve years after its establishment, however, and was sold off. The Wisconsin Phalanx thrived and became very wealthy, but only five years into its existence was sold off for profit: What was a wealthy community simply became a group of wealthy individuals (Wheeler and Tod, 91).

Organization and Institutions
In order to convert Fourier’s ideas into practice, the members of the North American Phalanx in New Jersey, headed by Charles Sears, its “chief apologist,” started on a project of designing new social, economic, and political institutions with the aim of creating “a complete commonwealth, embracing all the interests of the states, differing only in magnitude” (Hayden, 159). As a result, one member recalled, “their days were spent in labor and their nights in legislation for the first five years of their existence” (159).

Membership in the Phalanx was between 100 and 120 individuals and allowed for both families and single members. Families lived with their children, something many utopian communities have sought to forgo out of a sense of fairness to the children and assurance of both equal and more communally informed upbringing. The Phalanx did not base its institutions on unusual religious or social practices such as open marriage, which Fourier himself seemed in favor of (“Charles Fourier”). The sexual freedom that Fourier believed would allow individuals to satisfy their passions was not evidently fully subscribed to and, perhaps more importantly, was apparently not a requisite for the twelve-year success of the New Jersey Phalanx.

Conclusions
The most interesting fact about Fourier’s work and the attempts at producing working versions of it is the almost complete lack of technical resemblance. The buildings are only nominally similar, with perhaps the greatest crossover being attempts at sociopetal spaces. (See Hayden.) And it is hard to see in the Wisconsin Phalanx’s Documents of Incorporation (see below) and by-laws any basis in Fourier’s social theories of balancing the passions; they are more or less just conventional legal documents. Accounts of other attempts back this up.

What Fourier did, then, was produce an image or representation of an ideal community, which inspired, through his detailed writings, attempts by others to produce instantiated versions—which might, in my opinion, be easily equated with other attempts not inspired by Fourier. What this suggests is that the relationship between utopian projects and utopian environments does not need to be one-to-one: A single vision can drive the creation of multiple attempts to realize it. It does raise the question, however, whether successful utopian environments do not share some common ground which could be generalized outside the specifics of any given utopian projects. That is to say, if many of Fourier’s social theories and physical designs were completely ignored, or otherwise shared by other successful utopian projects, what does this mean for the meta-project of utopian studies?
BROADACRE CITY
FRANK LLOYD WRIGHT

Introduction
Unlike most utopian concepts, which often
derive from a Marxist or Communist point of
view, Wright’s design for Broadacre is founded
on the principles of radical individualism
and freedom within the nuclear family, as
well as small-scale economics aggregated
into dispersed communities. It is a deeply
conservative project in many respects, though
simultaneously reflecting a hard critique
of monopolistic capitalism. For instance,
while there is no attempt to eliminate private
property or to force members into a complex
corporation, the entire diffusion of work and
factories into small-scale units is an attempt
to offset the ruinous conditions and power
dynamics within industrial cities. Beyond the
economic problems of corporate America in
the early 20th century, Wright believed that
cities created a life of no culture. The answer
to America’s adverse economic and social
conditions, he thought, was to live in nature
and reappropriate the American agrarian
lifestyle. In fact, cities were no longer needed
at all, as they were simply being turned into
“overdone ultra-capitalistic centers” (Wright
1935, 349).

Contrary to many Marxist utopian projects,
private property wasn’t the problem with
respect to this “ultra-capitalism” in Wright’s
mind; it was the solution. The American public,
he thought, needed to regain control of its
own reproduction through “work on their
own ground or in their own laboratory or in
common offices serving the life of the whole”
(Wright 1935, 349). And from the platform of
the home, which provided “privacy on one’s
own ground,” the individual and family could
then engage others in true community.

Wright proposes a world devoid of large,
monopolistic corporations, and hence without
large cities. In its place is a continuous field
of sole proprietors who work their own farms
and in their own factories, and who sustain
advancement through self-guided research
projects. In this sense, the hyper-individuality
of Broadacre is a unique take on Marx’s
desire for the means of production to be
owned and operated by the very same people,
so that workers can appropriate their own
surpluses. Moreover, physical and monetary
accumulation for its own sake, as Wright
calls it, is specifically rejected. Instead, the
low-density lifestyle he advocated would,
he believed, remove the desire for it in a few
generations (Wright 1935, 349).

Theoretical Underpinnings
Wright bases Broadacre on what he
believes to be the organic response to the
invention of 1) the car, 2) the radio and
telephone, and 3) standardized “machine-
shop” production (ref). The first two allow
for action at a distance, and for human
communication to work equally well between
any two points on land—and for those
times when face-to-face communication is preferable or materials must be moved, a car or truck allows that to happen in timely fashion and with a minimum of effort. It is clear that Wright believed that not only had these inventions, up to that point, been mismanaged and not organically integrated into society, but they had resulted in "the exploitation we see everywhere around us in waste and in ugly scaffolding" (Wright 1935, 345). It is not clear exactly what he is referring to by scaffolding, but the point remains: A remedy is needed for the pollution of industry, and the results generally of industrialization. The car, then, becomes the de facto object of connection: It is assumed that every family has at least one car, and likely more than one. Wright next suggests a form of industrialized agrarianism whereby the factory is reduced in size and lightly placed within the total fabric of dotted buildings in the landscape. As a result of the proper use of these new technologies, the elimination of cities and towns (perhaps he means to say factory towns) is possible (Wright 1935, 346). Wright thought that cities had played their role in the history of mankind, but he believed in the "evolutionary laws . . . that change was the only constant in the historical continuum" (Lapping 1979, 12). But thought Wright was convinced that the city had become a source of uncontrolled and degenerate power (Lapping 1979, 13), he seems to disregard the creative function of cities, and the reality that within the dense conurbations he so staunchly opposed was born the very tools that he now sought to leverage for freedom from them.

Philosophical Influences

According to Leonard Reissman, one of the primary contributions of Broadacre was Wright’s attempt to connect a given idea of society with a specific form of city for that society (Reissman 1964). Within this framework and toward the end of developing a new city for a new society, Wright followed many of the philosophical trends of his time: especially a form of radical pragmatism, derived from Dewey and others, which combined political theory and empirical reality into what seemed like workable solutions—so-called rational utopias, as Bloch would label them.

Wright’s notion of decentralization came directly from Edward Bellamy, Peter Kropotkin, and William Morris. The agrarian, self-sufficient nature of his proposal can be traced back to Jefferson. Furthermore, thinkers such as John Dewey and William James felt that social change was dependent on individual involvement with issues, not on a top-down technocratic solution (Grabow 1977)—and Dewey and James also argued that democracy was a process, not a fixed form. Wright picked up on this idea in his designs, leaving mostly a framework with loose-fitting parts, not a rigid set of relationships. Regardless of how specific his own designs were, Wright believed that each town should have its own architect, with his or her own style, one responsive to the region.

Another influence on Wright was the Wisconsin Progressive Party’s platform, which encouraged home and land ownership for each American, but public ownership of nearly everything else, including utilities,
transportation, and communication. The party argued for free education and health care, food co-ops, and national banking and lending practices. Many if not all of these ownership models existed in Broadacre (Grabow 1977), and it should not be discounted that nearly all of these ideas are now in practice in Western Europe.

Ultimately, as Mumford points out when discussing Plato’s Republic and More’s Utopia, the progressive theorization of new societies in response to shocks and failures in the existing system—often war, but in Wright’s case the Depression—often leads to an increased energy aimed at inventing new forms for both social and political institutions. It is natural, after all, that when things are going well, minor tweaks to the system are all that must be envisioned; but when larger problems arise, the critical energy and mental effort required to start anew seem within reach.

Decentralized Agrarianism + The Suburban Middle Class

Jefferson thought that democracy was the ultimate attainment for society—and he also believed that the small proprietor, working his own farm, was the economic engine of that democracy. That is not illogical: A family that owns and operates not only their own business but the means to feed themselves is as self-sufficient as is reasonably possible. Governmental tyranny is much more difficult
in this scenario, because it requires a direct physical confrontation with the citizen through eminent domain.

From 1860 to 1900, for every person who moved to the countryside to farm, twenty moved to the city (Ciucci 1979, 300). Land as a basis of social stability in response to the increasing movement of people to the cities was a major component of the Homestead Act, and influenced government action and agrarian ideology from the late 1800’s onward. In 1940, a special committee created by the secretary of agriculture, Claude Wickard, argued that “the welfare of agriculture and of the Nation will be promoted by . . . efficient family-sized owner-operated farms” (Ciucci 1979, 301). But farming was just not profitable enough for families, owing to environmental problems which led to poor harvests. The wealth of the urban family continued to rise, while the wealth of the rural family decreased, from 1880 to 1890 in particular.

Beyond its economic and political connotations, the agrarian life also had a decidedly moral undertone to it by way of a critique of the city—which was, according to James, Dewey, and Adams, a place that “impeded human contacts and relationships because it was primitive and barbaric” (Ciucci 1979, 303, 313). Furthermore, the city was identified as being European, which in this period of American history was morally inferior vis-à-vis American values (Ciucci 1979, 313). In the end, then, farming was seen as both an economic and a social process, which combined to offer “the salvation of a class that, with industrialization and the awakening class-consciousness of the proletariat, was witnessing the destruction of the very values from which it drew strength” (Ciucci 1979, 315).

Influenced by all of these arguments, Wright believed he had to work to “civilize” urban life. He gave lectures to that end at Hull House in Chicago, where many of the cities’ intellectual elites met to discuss various issues (Ciucci 1979, 304).

The suburb became a middle ground for Wright, a place where he could design and live in a space between what could still be labeled as rural backwardness or rugged frontier, on the one hand, and city immorality and oppression. Oak Park, where Wright lived for many years, became an ideal balance between city life and nature. Here he found what Robert Park called a “subcommunity,” a place where he could find relationships of appropriate intimacy within an interconnected group—conditions not found in the city (Ciucci 9179, 307). As Giorgi Ciucci summarizes it:

Between the life of the city with all its cultural implications and that of suburbia as an expression of human contacts, Wright sought a higher synthesis, but between the intellectual society and the clan of family life there neither was nor could be any relationship. . . . Broadacres was an attempt to bring together an entire life experience in a single general vision, to overcome the contradiction between the world of the clan and the reality of the clan. . . . Broadacres overcame the essentially urban arcadian myth and proposed the return to the life of
the farmer, where life and culture are not yet separate, to the world of the frontier conceived as an autonomous culture, to a prebourgeois world and thus one not corrupted by capitalist development (Ciucci 9179, 307).

Design Influences: Ford and Borsodi

Two projects in particular preseage the final design of Broadacre, which within Wright's work was a long time coming. The first project was a decentralized industrial landscape designed by Henry Ford, which ran counter to the mythology behind his story as a profound centralizer of labor. This project, if completed, would have run along the Tennessee River for 75 miles, figuring a continuous development of linked cities. The proposal originated out of a smaller plan by which Ford hoped to develop nitrate deposits near the town of Muscle Shoals. The first incarnation was a chance for Ford to provide his own counter-design to the confusion and overdensity of the great cities of the North (Ciucci 1979, 336). His proposal was lauded by the New York Times, among others, for its balance between rural life and community.

Ford intended to apply his mass-production expertise to the natural growth of the city by fabricating the materials for construction on local assembly lines. This decentralization was not entirely benevolent, however. As shown by David Gordon, the suburbanization of factories in Ford's proposal was an attempt to control labor. Furthermore, self-production from the land was actually demanded by Ford, as any worker too lazy to grow some of his own food would not maintain a job at his factory. In reality, it is obvious that Ford was trying to lower his labor costs by making his workers produce both for him and for themselves. This tactic is similarly being spread today by IKEA and others on the consumption side by trying to make self-assembly a feature of products, when in reality it is a cost-saving tactic. In a lecture given in 1930, Wright commended Ford's proposal while completely ignoring the aspects of control and capitalist hegemony that Wright's own project would fight against.

The second influence, created by Ralph Borsodi and that was actually built, was the town of Suffern, New York. This small farm village was based on Borsodi's belief that "suburban homesteading was a viable alternative to urban industrial life" (Issel 1967, 156). Furthermore, Borsodi foreshadowed current critiques of capitalism by many decades, remarking that "[i]t is the factory, not the machine, which destroys both the natural beauty and the natural wealth of man's environment" (Borsodi 1929, 12; quoted in Issel, 157). Furthermore, not only did factory production ruin the landscape and consume terrible amounts of resources, but factory directors were concerned only with profit-making and thus produced "nonessential goods and sacrificed quality and craftsmanship for quantity and uniformity" (Issel 1967, 157). Borsodi’s response was to expand his single-family homestead operation, with "production of all its food, textiles, and clothing and its own working woods and metals" (Ciucci 1979, 341), to a full-fledged town. This town was an attempt, not unlike
Wright’s Taliesin in the desert, to create a fully integrated life world based on the family unit (though Taliesin was itself an extended family of sorts) (Ciucci 1979, 341).

It is important, when reviewing the proponents of homesteading and decentralized production, to not fall into a trap of dismissing these projects as romantic or overly ideological. Borsodi’s aim was self-reliance and self-control over his own reproduction, and seeking these through farming and home production was driven by a nuanced understanding of capitalist processes. He discovered that home production could manufacture the same products for 30 percent less than those purchased from large corporations that had excessive costs sunk in advertising and the like (Issel, 156). Furthermore, he warned against becoming a commercial farmer, and proposed instead a model based on the “pioneer farmer,” who was “little effected by the rise and fall of the prices in volatile produce markets” (Borsodi, 275; quoted in Issel, 159). Borsodi argued in favor of “production for use rather than for the market . . . and investment for security and independence rather than for speculation” (Issel, 159). What is evident here is that Borsodi’s theoretical and social goals are driving a very specific and very refined form of homesteading, one directly aimed at countering the power that capitalism has over the individual, the wage laborer, and the small business owner.

From Borsodi, Wright took these ideas of self-sufficiency and self-production in small communities and projected them up in scale. From Henry Ford, Wright took the idea that a decentralized region could still be continuously developed, and that a linear spine afforded an ideal organizing system. Wright swapped a multi-lane highway for the Tennessee River, but the functionality is similar. Connections between smaller towns are made through the shared infrastructure, which serves to orient, organize, and connect the disparate parts.

Physical Design

The primary principle behind Broadacre, as the name suggests, is a radical decentralization of American life, but not exactly the kind we have come to know as the typical American suburb. As Wright states, “the old standards of spacing should have gone out when universal mobility and electrification came in. The concept of ‘planning’ is a matter of the right kind of building in the right way in the right place for the right people” (Wright 1935, 152). Decentralization is used, paradoxically and counter to how suburbs are typically ordered, as a tool to reintegrate the totality of life: the production of food, material goods, education and training, and business, along with the family, the garden, and the park. The “elemental units of social structure,” according to Wright, are the farm, the electric-driven (pollutionless) factory, decentralized schools, homes, home offices, simple government, and “safe traffic.” All of these elements are instituted at the small and local scale: “little farms, little homes for industry, little factories, little schools, a little university . . . , little
laboratories” (Wright 1935, 346). It is, in a sense, the medieval town or early industrial city, with all of its complex functionality pulled apart to a point of non-congestion and placed against an agrarian underlay. Each use-type, each person, has the space and light it deserves and that will produce a more harmonious and joyful life.

The design of Broadacre as a specific project was meant only as a prototype. Wright believed that the architect should play a central role in planning and designing the layout and buildings of each separate community (Wright 1935, 346). Each county would hire its own architect, and as a result would have a unique but consistent architecture. Furthermore, each town’s public utilities, fire protection, police, banking, and other services would be controlled by the local county government. Wright believed that proper design brought with it a natural reduction in governance, since the latter results from incoherent and badly managed institutions and infrastructures. The elimination of cities, Wright believed, removed the “curse of petty and minor officialdom” (Wright 1935, 346).

The architect, then, solves multiple problems, which reduces dependency on bureaucracies while simultaneously giving a coherent formal expression to community life. There is no mention, however, of how families would deal with their own personal design proclivities. It can be assumed from Wright’s work in general that he felt that these decisions should always be left up to the properly trained architect.

Town Layout
Wright believed that town design must follow from organic integration into the landscape, though not “obviously and never academically so” (Wright 1935, 346). The example scenario he designed with students at Taliesin was four square miles based on one-acre units, and would house 1,400 families. There was to be a minimum of one acre per childless couple (more for a larger family), and buildings were to be of equally good quality, the only difference being size, which was based on need. Each town would attach to a large multi-lane highway, with the organization of the town being relative to this spine. The zone closest to the highway “contained industrial and mercantile land uses of small factories and roadside markets” (Wright 1935). The next zone was for small, community-operated farming. The third, largest zone was for residential use, with educational buildings mixed in. The penultimate zone was the civic zone, intended for sports, festivals, and other cultural events—with a stadium, a zoo, an aquarium, and theaters, as well as hospitals; this zone would be the centerpiece of the town, if one existed. And the last zone was a less densely populated residential zone for the wealthiest families, as well as for a “green belt”—though if there were no towns adjacent (that is, on the far side of the highway), it would presumably just become a buffer to wilderness.

Landscaping + Land Ownership
Landscaping is detailed down to the
Model of Broadacre
Image Credit: http://doyoucity.com/site_media/ckeditor/ansasa/2%12/11/2B/broadcare%20cityc.jpg
point where trees are not allowed in rows but only if they are perpendicular to the road, so as not to block views (Wright 1935, 348). Wright left forested areas interspersed in the housing zone; they were kept in trust for the community, so that as families grew there was space to expand, for eventual farming or housing.

Roads + Mobility

As stated above, development was continuous along the highway. The residential zone was a “mile wide and of infinite length,” and the entire development was only two miles wide at most (Grabow 1977, 116). These highways allowed high-speed access to other towns along the route. And since all towns would be within two miles of the highway, the shortest path between two towns would also be the fastest. The highway interchanges were designed for maximum ease of access and without the need for stoplights, as overpasses (like ones used today) would allow travel over the highway. Highways become architectural and functional, holding raw materials inside and becoming iconic in their own right. Cars and trucks were separated to increase safety and speed. Trucks also had direct access to the industrial zone, which ran parallel to the highway. Roads within the community were highly designed, preventing cars from running outside the lanes and injuring pedestrians. Wright assumed that personal helicopters would be invented, and he also designed high-speed rail lines for long-distance travel.

Industry + Employment

(needs more work)

Industry in Broadacre was aimed at local production, which removes the back-and-forth of logistics as “distribution becomes automatic and direct, taking place mostly in the region of origin” (Wright 1935 346).

The result of following through on Wright’s plan would, in his opinion, “automatically end unemployment and all its evils forever,” as people would work according to their own incentives. “Whatever a man did would be done—obviously and directly—mostly by himself in his own interest under the most valuable inspiration and direction: under training, certainly, if necessary. Economic independence would be near, a subsistence certain; life varied and interesting” (Wright 1935, 347).

Conclusions

Wright’s project is logistically sophisticated at a local scale: The layout of highways with truck lanes and direct access to industry is one example. But Wright doesn’t understand the network relationship in manufacturing. Maybe toasters can be made in one space, but a car has thousands of parts, many of which are sourced from local machinists and subcontractors. These subcontractors will want to locate near the bigger car companies, and thus monocultures of industry will still naturally occur in certain areas. Wright may have set up a situation where these monocultures are not as powerful or their failure not as devastating, but he assumes that designing the form of a town for a specific type of industrial organization would naturally lead to that type of industry happening, whereas ultimately, the owners
of capital make such decisions. And even if the systems started out as a series of self-owned factories, failure by one and success by another will lead to eventual consolidations—unless, of course, you have significant governmental oversight, which precludes the formation of companies of certain sizes. But this requires something Wright was adamantly opposed to—namely, greater governmental control.

All in all, Wright bases his community on the very specific American advantage of having an immense amount of space for a reasonably small amount of people. This is not, however, to suggest that his plan is inappropriate for this reason. The suburb has come under attack recently for reasons that Wright could not have reasonably foreseen. In 1935, he did not know that oil shortages were looming, that geopolitical issues would take center stage, or that environmental problems would emerge. This was, after all, just a few decades after the car had been invented, and even before the post-War, middle-class boom. Furthermore, if we can fast-forward another fifty years, we can imagine Wright’s community designs still working, but with the addition of solar panels, wind turbines, and perhaps even advanced nuclear power plants—located, as his coal plants were, sufficiently far away from the public. As well as electric cars, that would help to store energy during the day and be used to power homes at night.
NEW LANARK, SCOTLAND
NEW HARMONY, INDIANA
ROBERT OWEN

New Lanark, Scotland: Economic Reforms + New Institutions

New Lanark was originally a mill town in Scotland owned by David Dale. His daughter was married to Robert Owen, who in turn became a partner of New Lanark, and who continued to run it as one of the most profitable mills in Britain. Owen never intended the mill town to become a Utopia; rather, he came upon the idea that Utopia was possible as a result of his self-proclaimed humane and positivist management of New Lanark.

Prior to meeting Dale’s daughter and taking over the management of New Lanark, Owen had made a fortune in cotton in Manchester, England. During that period, Owen came to believe that industrialization and the terrible conditions it had wrought were not necessary in order to run a successful business (Tod and Wheeler 1978, 81). Once Owen had taken control of New Lanark, he had free reign to implement the reforms he wasn’t able to achieve in Manchester. Among them were: a higher minimum working age of 10; a reduction in total work hours; a single community store selling better-quality food and products at a 25 percent discount off the market rate; wage deductions of 1/60th to cover sick pay and retirement; and the opening of the first infant school in Britain, which
all the children in the community attended. Behind all of these reforms was not simply a belief in philanthropic business, but a more radical ideology that “it is of all truths the most important, that the character of man is made for him and not by him” (Tod and Wheeler, 80).

But this precept presaged subsequent criticism by many who visited Owen’s ideal corporate town. For Owen actually used more than benevolence and humane treatment to secure morally acceptable behavior from his workers. In fact, when Owen arrived he described the workers as “collected hastily from any place from whence they could be induced to come, and the great majority of them were idle, intemperate, dishonest, devoid of truth and pretenders in religion” (Donnachie and Hewitt 1993, 70). To counteract what he deemed inappropriate behavior, Owen set up night patrols and fined repeated offenders for drunkenness and disorder, eventually firing a number of workers and kicking them out of the town; apparently not all men could be trained Owen also set out to clean up the town, and so required each house to be cleaned weekly and repainted yearly.

Owen’s workers were understandably unhappy with him in response. What appears to have turned the tide of worker opinion in Owen’s favor, however, was his generosity in the wake of a cotton embargo and price hike, which meant that he could not profitably run the business during a three-month period (add date). But instead of laying workers off, cutting wages, or refusing to pay his workers until conditions improved, Owen simultaneously stopped the factory while paying full wages to his workers (Hewitt, 72). It is uncertain whether this was a business strategy on Owen’s part. It is possible that Owen believed it would be cheaper, in the end, to maintain trained, already morally filtered workers than to replace all of them when conditions improved. In any case, the gesture cannot be disregarded, and it certainly worked in his favor.

Beyond the Mill: Reforming Institutions

Owen acted in accordance with his nurture-over-nature philosophy with respect to other aspects of workers’ lives as well. He put effort into the creation of a new school pedagogy which aimed to mold children’s inclinations toward pursuing happiness by way of games, dance, physical movement, and conversation (Hewitt, 83). It is hard not to think that Owen had a business goal in mind along with whatever benevolent moral paternalism drove this aspiration. Through a “consistent, kind, and non-violent regime, with no ‘artificial’ rewards or punishments, a child was to develop a sense of community and understanding of ‘the necessary consequences . . . which result from any action’” (Hewitt, 83). The school’s success brought nearly 20,000 visitors hoping to see the children at work (Hewitt, 74). Owen’s emphasis on the power of education and training aligns him directly with Plato’s utopian claims, though Owen was interested not in differentiating classes through education and training, but rather in creating a very specific form of class: what might be
called the happy worker, but one certainly
docile and committed to productive work.
(Add section on the community store.)

Individual or Systematic Reforms

In the end, New Lanark was successful
because Owen was a brilliant businessman.
His social reforms need not be minimized:
He applied his intelligence admirably to the
reform of his workers’ living standards. But
it is important to remember that his social
reforms were implemented at least partly for
business reasons. His social reforms aimed at
developing morally upright and happy citizens
who would be productive workers—just as
managers generally desire to maximize worker
output. But instead of lowering wages as
much as possible, Owen chose to organize
the totality of his workers’ lives so that their
output was both cheaper to produce and of
better quality. This simultaneously promoted
worker productivity and retention. The school
system provided for the literal reproduction
and training of workers while also giving
families another benefit. New Lanark was, in
no uncertain terms, a vertically integrated
worker community.

Indeed, Robert Southey, a well-known
poet of Owen’s day, remarked upon visiting
that Owen’s “paternalism and regimentation
of his system” were obvious in the town
design and operation, and that watching
the children’s movements was like watching
puppets undergoing repetitive motion (Hewitt,
110). Ultimately, Southerby felt that Owen’s
workers were under the same “absolute
management as so many negro-slaves,” and
were “human machines” made as happy as
possible by Owen, who made sure to “make a
display of their happiness” (110).

The success of Lanark can also be
partially attributed to Owen’s pure business
acumen. He was well known for finding or
negotiating low cotton prices. Being in a
mill town and not in the city proper, he also
benefited from lower wages. And he was one
of the first to brand his company’s output,
by putting a picture of his mills on each ten-
pound bundle of yarn, known today as picture
yarn. (92). His increased profits purely on
these terms would aid in the construction
and organization of the social institutions
mentioned above.

Owen’s business savvy and social
planning together produced results that
cannot be dismissed. Just like Ford’s use of
the assembly line in car production, Owen’s
reforms were true innovations to capitalism.
He showed then, as studies on worker health
and happiness do now, that productivity
results from a complex relationship among
multiple factors. Unlike Ford’s innovations,
however, Owen’s widespread organization of
schooling and stores, among other departures,
did not take off in most industries. This is not
to say that many attempts weren’t made by
Ford, Pullman, and others to design a total
factory town, but such simply didn’t become
the norm, nor did it last for more than a decade
or so when it was tried.

Time always reveals whether new forms
are sustainable or not, and whether they
herald a new social prototype or are just the
result of a singular genius. Owen believed that he understood something unique about human nature—that people's morality was taught to them—and that this provided him with the ability to mold his workers. A more cynical interpretation might hold that his workers did what they had to in order to keep their jobs, and thus whatever social reforms were achieved occurred in spite of, not because of, Owen's theories.

To decipher why a degree of outward success was achieved with an experiment of this kind, it is important to differentiate between the story told by the founder(s) and the story told by outside observers. As Southerby remarked, "Owen was jumping to the monstrous conclusion that by successfully organizing 2,000 mill workers, he could also organize the whole of society in a similar fashion." What Owen failed to understand was that it all worked because of his absolute power over the system, and this would simply not work on a larger scale (110).

Such criticisms did not stop Owen from attempting to systematize his theories and spread them to other communities. But after the Napoleonic War ended, the reduction in wartime spending caused industrial production to slow down to such an extent that Owen's prior strategy was not possible. Throughout England, cuts in production and wages and a subsequent increase in employment and poverty drove Owen to the realization that even as the owner of the mill, he could not provide for his workers unless demand was high. In response he proposed a series of self-sufficient agricultural colonies. He called them "villages of co-operation," and each would house 300 to 2,000 people. (add more about these)

Harmony, Indiana

In 1824, Owen was contacted by Richard Flower, who on behalf of the Rappite Community in Harmony, Indiana, was attempting to sell a large piece of property. Owen purchased the land for $150,000, and it included the following: 30,000 acres of land, 3,000 under cultivation, 19 farms, 600 acres of "improved" land, orchards, 18 acres of vines, and a village with a public square, along with normal building types. This was to be the first secular utopian project. Owen left almost immediately, however, with a three-year constitution in place intended to organize the community. After a year, however, Owen had to return to help run the operation, as the members had done almost nothing in his absence.

On July 4th, 1826, Owen published his Declaration of Mental Independence, which proposed freedom from the evils of "Private or Individual Property, Absurd or Irrational Systems of Religion and Marriage," and referred to New Harmony to be the "beginning of the millennium" (85). But the community broke apart shortly thereafter.

There were a number of lessons to be learned from New Harmony, and Owen himself admitted that nearly every mistake that could have been made was made. Some of these mistakes were commented on by others. They
Barefoot Spinner [1956]
included taking on an already fashioned town; permitting open-door membership; and not establishing democratic decision making but instead allowing for an individual’s (Owen) veto power. It attracted, according to critics, a group of people who were, in the end, simply lazy. And this may be the most important lesson for utopian communities: Every member must be at least nominally useful and productive. There is not much room for dead weight, even under the best of circumstances.

PULLMAN, INDIANA
GEORGE PULLMAN

Introduction
In 1880, George Pullman had plans for a model factory town drawn up by an architect and landscape designer. The town, named after himself, would be located eight miles south of Chicago, and was intended to serve as a model for other industrialists who he hoped would move their factories to similar “planned industrial suburbs” (Buder, 1967, 2). The town was supposed to balance aesthetic appeal with functional order, so that “everything fits,” as a Boston paper remarked, and, more importantly, “all social, commercial, and industrial needs were to be anticipated and planned within the town” (Buder, 3). Construction of Pullman began in 1880 and was mostly finished in four years.

Town Layout + Architecture
The town plan was simple and “indicative of the more progressive ideas of the time” (Buder, 3). The industrial sector was a carefully grouped series of buildings in the center of the town, with a lake to the East, a railroad running along the West, and two residential areas to the North and South [see plans below]. The industrial area was cordoned off from the town’s housing and amenities, as would be expected, and visually blocked from view by ornamental walls. The gridded streets of the Southern housing section were broken by communal program pieces, such as a market square, a number of parks, and other public buildings. There was a variety of housing types, from single-family detached houses renting for $65.00 per month to two- and three-room apartments (for $5.00 per month). But the mass production of all housing led in just a few years to a noticeable “machine-made” quality (Buder, 6). Attempting to create a mixed collage that looked naturally derived was difficult, even with the use of ornamental styles. To Pullman’s credit, however, he did provide housing that was well above the standards for the time.

Social Agenda
Pullman wanted to provide better housing for his workers than would be available in larger city tenements, believing that mass production and prefabrication could produce a happy medium whereby workers got significantly better housing for only a modest increase in rent (Buder, 4). But while Pullman did provide better housing for his workers, he did not allow residents to buy their houses, for fear of losing control. He was, it appears, more concerned with protecting and maintaining
his vision than with allowing for a vibrant, self-fulfilling community. To keep outside influence at a distance, Pullman purchased several thousand acres surrounding the town as a buffer space, bringing to mind the fifteen-mile moat dug around More's Utopian Island (Buder, 6). And Pullman was interested not just in the physical control and management of his town, but in the social reproduction of his workers as well. This was a town aimed at the efficient output of both industrial and moral material.

Politically speaking, the workers had almost no organizational power aside from the school board. And there seems to have been as many townspeople happy with this lack of political control as there were those lamenting this fact. When things are running well, there is little need for political power. Pullman believed that most municipal problems should be dealt with by an appropriate specialist—what we might today call a technocrat.

Until 1894, the plan was working out. The town was generally attractive, well ordered, and remote from the vices of Chicago, while offering many of the cultural amenities usually reserved for the wealthy in large cities. In the end, however, all of this centralized control was too much; as one resident remarked, "the company owns everything and it exercises a surveillance over the movement and habits of the people in a way to lead one to suppose that it has a proprietary interest in [their] souls and bodies" (Buder, 7). Pullman was at best a benevolent dictator—and at worst, a malevolent one.

Critique

The Pullman community was designed for convenience—to simplify life for the residents—but it also presumed to know all of the things they would or could want or need. The lack of expandability and changeability, and the planned social stratification created by nicer, more expensive houses being built nearer to the factory, reinforced the sense that the town was designed from the top down, to be a solidification of the existing industrial. The result was twofold. First, visitors couldn’t help but notice that everyone they interacted with was an employee of Pullman, from the hotel manager to the firefighters. And second, because no one had any real control over the operation or design of the town, nor ownership over their own space, residents were "without local attachment or any interested responsibility in the town" (Senate Executive Document No. 7, quoted in Buder, 7). In the end, this lack of ownership and control led Richard Ely to conclude that the "idea of Pullman in un-American.... It is benevolent, well-wishing feudalism which desires the happiness of the people, but in such a way as shall please the authorities" (Ely 1885, quoted in Buder, 8).

Ultimately, the crisis of 1893 forced Pullman to slash wages, but he didn’t change rents, which were already 20% higher than in Chicago to begin with. This led in short order to workers striking, and to one of the larger labor struggles in American history. In the end, then, Pullman failed less because of its physical determinacy then as a result of its social and economic strictures. This is not to say that the workers loved the town’s physical make-up; they did not, but they did appreciate
that many conditions were better, and that many amenities existed for their use that they wouldn’t have enjoyed otherwise. When the town was doing well economically all (else) was well, but there was no safety valve or flexibility mechanism to allow wages and rents to adjust in response to the outside world, and Pullman was not willing to lose money on rents. This all led to an impossible situation for the workers. Even if they had wanted to stay in the town, which certainly many did, they simply could not: Pullman cut their wages while keeping all else the same.

This is, in a sense, a microcosm of labor struggles throughout the world. The attempt of industry to lower wages to the bare minimum while simultaneously extracting maximum rents. When these two people are one and the same, as Pullman was, the absurdity of labor’s situation becomes too much to bear. One of capitalism’s best tactics, though obviously unintentional, is to fragment the various types of abuse of labor. This helps to mystify its operation, while keeping society in the dark as to what is really happening. At Pullman, it was obvious what was happening—obvious not only to the lower-skill workers, but to managers as well. In the end, the entire workforce went on strike and drove the planned community into the ground.
KIBBUTZ
ISRAEL

Introduction

The very first kibbutz, named Degania, was started in 1910 near the Sea of Galilee. The early kibbutzim were established by Russian immigrants after the failure of the 1905 revolution (Spiro 2004, 557). However, most kibbutzim were created during the 1930’s and 40’s, just before Israel was recognized as a legitimate state in 1948 following World War II. Most importantly, the kibbutz was from the outset considered a utopian form of living, and was guided by two desires. The early kibbutzim grew out of a need to cope with their founders’ difficult circumstances: “Only by living and working communally, so they discovered, were they able to cope with their inhospitable social and physical environments (Spiro, 557). The later (post-state) communities were at least in part created in an attempt, according to Kiryat Yedidim, to “discover [the true] man,” by which he meant to discover “the love, the fellowship, and the concern for others that constitute the true qualities of human nature” (Spiro, 557).

In terms of production and economy, the earlier kibbutzim started as communal farms. During the 1950’s, however, industrialization generally within Israel led to industrialization within the kibbutz as well. Currently, 80 percent of kibbutz production is industrial, mainly food and machinery and other finished products, while the remaining 20 percent is agriculture (Abramitzky 2011, 186). Including food within the industrial sector, however, seems to imply that many kibbutzim have simply taken on the processing of their raw agricultural products in an attempt to generate more income.

During the period in which kibbutz production shifted toward the industrial sector—and, now, even high-tech industry—membership in kibbutzim as a percentage of Israel’s total population has steadily, though not catastrophically, declined, from a high of roughly 5 percent of the total population in 1952 to 2.5 percent in 2000 (Abramitzky, 186). Because Israel has grown since the 1950’s, however, the absolute numbers of kibbutz residents are roughly the same. In the end, the kibbutzim have maintained their numbers through a wide range of difficulties.

General Principles of the Kibbutz

The following general principles undergirded the earliest kibbutzim, though many since have been relaxed: [1] members live together on shared land and without private property; [2] children are raised communally and live together in special residences, so that women can be treated fully as equals; [3] income, which is non-cash-based, is distributed equally (if at times according to specific needs); [4] education is collective, in order to instill socialist values; and [5] production is also communal, and outside hiring of labor is not allowed, because it is deemed exploitative in Marxist terms. (Spiro, 557; Abramitzky, 185). The last principle especially has not held, as new
forms of industrialization have required the hiring of outside labor (Mott, 1991). And other precepts have been loosened as well. While such changes may be seen as constituting a failure to reproduce the community over time, they can also be understood as reflecting a realistic understanding of the larger society, and in particular of the need to adapt certain aspects of the institution in order to maintain and protect the most vital ones.

In the end, most communal enclaves in the United States didn’t last more than a generation (Hayden 1976), and even the original Puritan villages of the Massachusetts Bay Colony in the mid- and late 1600’s had issues with the children of the first and second generations wanting to break free. They revolted not just against the strictures of oppressive religious values, but from the notion of commonly held land and other socialist values as well (Sumner 2011). That the kibbutz has lasted over a hundred years is remarkable and would not have been possible without significant changes.

But the kibbutz didn’t just adapt to its larger society in order to maintain its membership; it engaged that society on its own terms while also trying to shape that society: to be a beacon to other Israelis suggesting how their society could be, if only individuals would give up their self-obsessions. It is difficult to know to what extent this has happened in Israel; but without doubt every Israeli knows the kibbutz well, and many have spent time visiting kibbutzim or working in them. This is in sharp contrast to American utopian movements such as the New Harmony and Oneida experiments, which were separatist movements and sought “salvation” from, not for society (Mott 1991, 153). Perhaps this should not come as a surprise when we consider that the purpose of the original Puritans who left England was to avoid their own countrymen who were not religious enough. They feared that their souls would be corrupted if they stayed in England (Sumner 2011).

It should also be noted that while the communal focus of kibbutzim provided stability, equality, and economic resilience for kibbutz members, social intimacy and caring were ends in and of themselves. Just as in many of the separatist utopias, control over the material reproduction of life ensured that time and energy were available for other, socially oriented pursuits. Work itself was done in a way that resisted atomization of skills and the alienation that Marx strongly opposed. Personal privacy was therefore not just given up for the sake of economic benefits, but rather was forgone or exchanged for the sake of the social benefits of mutual aid, and for a sense of personal identity with the larger group (Mott, 54). As a result of this priority, it could be said generally that in the case of the kibbutz, the economic institutions create the necessary stable reproduction of the community’s physical life in order that the community can pursue its larger social agendas.

A clear example of economic organization on the kibbutz being subject to a social agenda is the non-division of labor (Mott, 154). Surely the community would be more productive, as capitalism has shown, by each member’s becoming a specialist at
one particular aspect of kibbutz production. However, as Marx discusses at great length, this leads to a general condition of alienation with respect both to one’s own work and to society in general. To avoid this alienation and to gain the benefits of self-actualization from labor, “one of the normative patterns of the kibbutz is a variety and rotation within work so that intellectual and physical labor are combined” (Mott, 145).

As a corollary to kibbutz members’ views on economics generally, and on labor practices specifically, kibbutz members tend to practice minimal consumption. This is partly for aesthetic reasons, as the pursuit of fulfillment through consumption is seen as a false preoccupation, but it also allows the community to work less, which frees up time for those things which do bring meaning to the community (Mott, 155).

The Anti-Classical Economic Logic of the Kibbutz

According to Ran Abramitszky, in light of normative economic theory, which assumes that individuals seek the maximization of their own self-interested utility, the kibbutz’s equal-sharing economy should not last very long, for several reasons. First, the higher-ability members should be able to gain more income outside of the community, much as countries suffer from “brain drain” during economic downturns. Second, the reverse should be true as well, meaning that lower-skilled members of the general population will have an incentive to join, because they get a subsidized income from the work of the higher-skilled members. And third, regardless of your skill level coming in, there is incentive for free-riding and also reason to not be taken advantage of by free-riders, so the community’s total output should drop (Abramitszky 2011, 185,186). Yet, the kibbutz managed to be successful over long stretches of time, even outlasting its capitalist-based industry cousins. [Research needs to be done to flesh out when and how this success happened, and to enumerate Abramitsky’s conclusions.]

Ultimately the conclusion that might very well be drawn from the kibbutz is that hard work and dedication to an overall vision can overcome the “deficits” of non-specialized, wage-based labor systems. In the 1980’s, People Express Airlines operated with a similar model, whereby each employee could do all jobs, and work was rotated to maintain interest. Workers were also given partial ownership of the company, and thus were motivated to work harder so as to benefit everyone involved, including themselves. The company ultimately failed, owing to overwork and a falling stock price, but for a few years, what logically went counter to economic theory worked better than any other airline around: The company had the highest customer satisfaction and the lowest prices.

My point here is simply that humans are not machines. The social and intellectual environment within which people work affects their output, and it is very possible that it can counter-balance the normative strategies of production-line hypermanagement. If the kibbutz has been successful, it has at least in some part to do with the fact that workers likely enjoy what they’re doing more than ordinary workers in a top-down, profit-seeking
Photograph of Kibbutz Bedroom and Shared Spaces
firm, where they do not share in their surplus production.

Planning and Architecture of the Kibbutz: The Diagram

According to Schmeul Mestechkin, there are three fundamental spatial areas of the kibbutz, each corresponding to an economic or social function: the “production zone,” the “habitation zone,” and the “greenery zone” (Or and Yaski, 133). These zones are related within the physical environment by a simple formula. The habitation zone is placed—either by elevation or by wind direction—to receive the best ventilation. The production zone is then located “upwind” relative to the habitation zone, to keep air pollution from the fields, livestock areas, tractors, and other noisy and/or noxious activities from blowing over the houses (Or and Yaski, 134).

The habitation zone is built parallel to the production zone, with a buffer space. This parallel construction allows all points within the habitation zone to be within a roughly ten-minute walk from the production zone, so members don’t have too long a walk to and from work stations. The ability to walk between home and work areas is critical, because it allows members to live in the community without a car. This frees up land normally devoted to roads, and makes for a more pleasant and safer environment—and it also saves a considerable amount of money, which should not be discounted.

The habitation zone includes the following types of buildings: housing, a dining hall, a culture house, a clothing store, childcare and education buildings, and sanitary and medical buildings (Or and Yaski, 134). The publicly used buildings are located at the center of the settlement, along the dividing line between the production and habitation zones. Of these public buildings, the dining hall is the most important, as it is not simply the space for eating, but for collective activity generally. Importantly, because all meals are eaten here together, this location must be accessible from all locations at all times, and for all ages. Thus, both symbolically and functionally, the dining hall is the central space of the kibbutz (Or and Yaski, 135).

Space Types

“Room” (heder): This is the term for the residential unit of living and was originally just that, a single space for sleeping and reading, with multiple rooms in a row constituting a single structure. Unlike Fourier’s phalanstere and other forms of communist housing, the housing units were not connected along a continuous corridor, but rather spread out with space between them, much like a suburb. As privacy became increasingly important to kibbutz members over the decades, however, additional spaces have been added that were originally part of public spaces: first, bathrooms were added; then cooking utilities, and finally bedrooms for children, as families reintegrated as smaller social units (Or and Yaski 2010, 202).

“Production Zone” (hatzar meshek)

This term refers to spaces for production and specifically for agricultural work within the kibbutz. Generally speaking, all of the
productive activities were housed in one space together in order “to signify the symbiosis of the production branches in the kibbutz society, which supplies all its needs through its own efforts.” I suspect that this was more than just symbolism, however, as the collocation of canning, preparation, and cleaning areas would make work less strenuous and more productive. In highly regulated societies this kind of proximity may not be possible, for fear of contamination and lawsuits. Obviously a kibbutz has more leeway in such matters and may benefit economically from the lack of state-based regulatory oversight—or, at least, from more understanding communal oversight (Or and Yaski, 228).

“Children’s House” (beit yeladim)

The children’s house was conceived of as a self-contained kibbutz within the kibbutz. Most of the children’s needs were taken care of within this structure, which included shared bedrooms where the children slept together away from the adults, a dining hall, school classrooms, a courtyard for protected outdoor play, and other communal activity spaces. During the 1970’s and ‘80’s, kibbutzim started to reintegrate the children into their parents’ homes, as the idea of “collective sleeping” was abandoned. (Or and Yaski, 216).

Proximate types: the moshav ovdim and moshav shitufi

In addition to the kibbutz, there are two alternative types of communal settlement in Israel. The first, the moshav ovdim—literally, “workers settlement”—is collective in its purchasing of equipment and marketing of goods, but each family works its own plot, makes decisions as to what to grow or produce, and retains profits privately. The family also makes private decisions regarding consumption (Mott, 153). The moshav shitufi is one step closer to the kibbutz, in that all production activities are collective. However, as in the moshav ovdim, consumption choices are all made privately within the family unit (Mott, 153).

The Industrialization of the Kibbutz

In general, the kibbutz form of collective agriculture has exceeded the average productivity of other, profit-driven firms. To be precise, 28.5 percent of Israel’s agricultural workers produce 40 percent of their gross farm output, and the average yield per cow is 20 percent higher than the non-kibbutz average (Mott, 159). It should be noted that these productivity gains are not found in the moshav shitufi and moshav ovdim, and hence it appears that less cooperation has led to less productivity, at least in the case of Israel’s agricultural industry (Mott, 159). One reason for the superior efficiency of kibbutz farming is that, as Mott explains, “The kibbutz stands out in its appropriation of technology and mechanization” (Mott, 159). This also explains the lack of similar efficiency in the moshav groups, as their more individualized farming practices do not provide the scales of economy needed to support advanced agricultural technology.

In the industrial sector, the kibbutz still provides competitive advantages vis-à-vis normative industry, with 5.5 percent of kibbutz
Photograph of School Spaces
Photograph of Kibbutz Food Production Space
industrial workers producing 7.2 percent of Israel’s national industrial production, but in general the multiplier is smaller than in agriculture. That said, from 1982 to 1987, exports of kibbutz industrial products increased 78 percent more than those from non-kibbutz firms, showing that at least during certain periods the kibbutz has been not only competitive, but a superior form of industrial organization.

Even this seemingly superior performance hasn’t kept capitalist-based criticism at bay, however. Kanovsky provides boilerplate neoliberal economic assessments of the kibbutz during the 1970s and ‘80s, when, he points out, although the kibbutz was more efficient in production, it was not more profitable, because it gave its members higher wages and more free time, and used less child labor. It is difficult to argue with this assessment, except to ask what the point of profit is at all, if it is not to be returned to the community in the form of higher wages. What good is capital if it is not used? And if the goal is not the self-valorization of capital, following the M-C-M formula, then how would Kanovsky and others quantify economic success? Furthermore, kibbutzim members’ communal desire for non-cash consumption, in the form of free time, rest, and the like, has resulted in significant profits precisely because consumption did not rise with revenue. That is to say, while profits were going up owing to technological competitiveness, kibbutz members maintained the same basic lifestyle as before (Mott, 162).

The Challenges of Industrialization

But industrialization has not proceeded entirely smoothly in the kibbutz—quite the contrary. Because industry—and especially high-tech industry—requires more expertise and training than do agriculture and simpler forms of material production, it is harder for an industrial-based kibbutz to maintain the work rotation of the traditional, farming-based kibbutz and still maintain competitive production efficiency. This problem stems from the technological sophistication of new production processes and the resulting necessity both for workplace hierarchies to coordinate production, and for more specialized labor, sometimes hired from the outside (Mott, 160). The result is a diminished sense of control over the work environment, and a resulting loss of personal attachment to the work. Thus, it appears, the requirements of work specialization by dint of the sheer complexity of many industrial processes has led to the alienation of workers from their work, contrary to the express desire of the kibbutz to avoid repetitive work.

In response, many kibbutzim have turned to automation. At first blush this may seem ironic, as it comes down to simply removing more specialized and isolating jobs, but automation does not result in alienated labor—especially when there is other important work to do. Beyond bringing in automation, many kibbutzim have also concentrated on more decentralized types of work, which allows for the traditional job rotation. Examples of these, according to Leviatan, would include electronics and instrument production, flowing chemical processes, optic instrumentation, computer services, and research services.
Inter-Kibbutz Cooperation and Purchasing Power

One of the bulwarks against multinational firms has been the cooperation amongst kibbutzim when purchasing raw and primary materials and inputs. By using collective purchasing power, the kibbutz community—which comprised roughly 270 kibbutzim as of 1988 (Mott, 152)—is able to negotiate like a large corporation (according to Mott, the “kibbutz importing organization” is the largest in Israel) and hence consistently receive the best prices. This is one of the more interesting facts of kibbutz economic life. Because the fundamental ethos across all 270 kibbutzim is relatively similar, they are able to turn the capitalist monopoly strategy on its head, and outnegotiate even the largest for-profit firms.

The Ideal Kibbutz Size

It must be asked at this point: If community is such a critical part of the kibbutz’s success, and communal spaces which can house the entirety of the membership are the center of the community both physically and psychologically, exactly how many individuals make up the ideal kibbutz? Rosner (1986c, 9: see Mott) claims, on the basis of first-hand accounts from members, that the optimal size is around 800, 450 of them adults. Mott summarizes the claims of Bergmann well, observing that “the kibbutz has endured in part in its discovering a size which is large enough not to be disrupted by the decision of a few, but small enough to avoid bureaucracy and permit personal communication. The associative network allows the smaller optimum size” (Mott, 164).

Conclusions

The kibbutz offers the best example of a real-life, working utopia. The foundations were purely socialist, and for a time, at least, the kibbutz operated with no private property and no wage labor. These radical beginnings gave way to pragmatism and economic flexibility as private property and hired workers allowed the kibbutz to respond to both member and societal demands. But the shifting economic realities do not necessarily reflect radically different social desires. Wanting private property does not, by default, mean that one is materialistic. And hiring outside workers does not necessitate that you treat them badly, nor force them into alienating forms of work. If the kibbutz has been able to manage one hundred years of shifting external conditions, it is certainly in part because it has not fetishized or codified its original ideology, nor eschewed the adoption of new technologies in pursuit of its larger objectives. It has, in the end, remembered that the means of sustaining a communal life together can take many forms, and while some are purer than others, all are better than the alternative.

In terms of its formal instantiation, the kibbutz community tends toward pragmatics and functional forms and arrangements. The symbolism of placing the communal spaces at the center of the community is certainly not lost on kibbutz members, but I would argue that their within-walking-distance location
is perhaps the most important aspect. The buildings are relatively nondescript, built for ease of construction and at minimal cost. The kibbutz is not intended to be formally aesthetic or minimalist as a statement of ideology, but it is the result of the desire to live such a minimalist life in reality, so that time and effort can be spent in communion with fellow members.

It must be asked if the kibbutz could survive without being physically isolated. Though economically the kibbutz engages society at large, it is still, in the end, not much different from a puritan village. What would happen if a kibbutz attempted to operate in an urban environment? Could it still survive and flourish if the community took over a continuous segment of the city? Could it survive if it had to interact with other, non-member buildings and their residents? At what level of diffusion would it cease to be a meaningful community? And at what degree of interaction do you stop being a neighbor and start being a community?

Though my thesis does not intend to reconstitute a kibbutz per se in urban form, it does seek (as the kibbutz did in the beginning) to create a new form of economic agreement in the face of significant external pressures. Such an agreement would likely lead to the increased interaction of the community, and perhaps the beginning of a new form of American kibbutz.
Bibliography

3.2 Utopian Case-Studies


Borsodi, Ralph. 1972. “This Ugly Civilization (New York, 1929).” *Borsodi’s Thought Continues to Be Influential with the Communal Group at Heathcote Center Where the School of Living Publishes The Green Revolution*, 272.


The larger site is a former industrial area, which still retains some light and medium manufacturing, production, and related industries.

The most critical aspects of the site are the large plot sizes, which include some of the larger remaining plots in the Boston area, access to highway for logistics, the surrounding neighborhoods with 60% family households at 30% home-ownership, and the planned greenline extension.

All of these factors combine to make the site both open to production, but also potentially successful for housing due to the existing adjacent communities and desire for mixed-use growth on that specific site.

While many plots would suffice for testing the collectives, I chose a medium sized plot (combined of four smaller plots) with an existing park along the Northern edge and a rail-line along the Southern edge. Across the street are housing and light-industry. Friendships that the households I believe might join the housing collective would
Density = 14,780 / per mile squared
Households = 6.2% Family
Home Ownership = 34%

Fig - Census Tracks + Population

Fig - % Population College Education or Higher

Fig - Recent + Proposed Development Areas
## Consumption Categories Percent of Total Yearly HH Income

<table>
<thead>
<tr>
<th>Consumption Categories</th>
<th>Percent of Total</th>
<th>$45,000.00</th>
<th>$52,500.00</th>
<th>$60,000.00</th>
</tr>
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<tbody>
<tr>
<td>Cars</td>
<td>5.7%</td>
<td>$1,960.00</td>
<td>$2,420.00</td>
<td>$2,880.00</td>
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<tr>
<td>Gas</td>
<td>5.3%</td>
<td>$2,700.00</td>
<td>$2,830.00</td>
<td>$2,960.00</td>
</tr>
<tr>
<td>Car Repair + Other</td>
<td>1.6%</td>
<td>$2,150.00</td>
<td>$2,455.00</td>
<td>$2,760.00</td>
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<td>Public Transport</td>
<td>1.2%</td>
<td>$343.00</td>
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<td><strong>Transportation Total</strong></td>
<td><strong>13.8%</strong></td>
<td><strong>$7,153.00</strong></td>
<td><strong>$8,075.00</strong></td>
<td><strong>$9,000.00</strong></td>
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<td>Entertainment</td>
<td>—</td>
<td>$1,867.00</td>
<td>$2,348.50</td>
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<td>$454.00</td>
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<td>Other Entertainment</td>
<td>—</td>
<td>$171.00</td>
<td>$234.50</td>
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<td>Entertainment Total</td>
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<td><strong>Food at Home</strong></td>
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<td>Food Away from Home</td>
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<td>Alcohol</td>
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<td><strong>$6,196.00</strong></td>
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<td>$1,500.00</td>
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<td>$585.00</td>
<td>$630.00</td>
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<td><strong>4.1%</strong></td>
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<td><strong>$1,400.00</strong></td>
<td><strong>$1,700.00</strong></td>
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<tr>
<td><strong>Misc</strong></td>
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<td>$672.50</td>
<td>$690.00</td>
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<td>—</td>
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<td>$404.00</td>
<td>$392.00</td>
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<td>$515.00</td>
<td>$567.50</td>
<td>$620.00</td>
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<td><strong>Total Personal Items</strong></td>
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<td><strong>$26,440.00</strong></td>
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<tr>
<td><strong>All Total</strong></td>
<td></td>
<td><strong>$48,822.00</strong></td>
<td><strong>$53,662.50</strong></td>
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## 3.4 Economic Calculations

<table>
<thead>
<tr>
<th>Collective Purchasing</th>
<th>Collective Production</th>
<th>Collective Services</th>
<th>Total Savings</th>
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<tbody>
<tr>
<td>% of Total</td>
<td>% of Total</td>
<td>% Savings</td>
<td>% of Total</td>
</tr>
<tr>
<td>100% 15%</td>
<td>100% 25%</td>
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<tr>
<td>100% 15%</td>
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<td>50% 15%</td>
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<tr>
<td>100% 40%</td>
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<tr>
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<tr>
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<tr>
<td>50% 15%</td>
<td>50% 25%</td>
<td>50% 15%</td>
<td>50% 15%</td>
</tr>
<tr>
<td>Property Costs (Somerville, Brickbottom Area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Acres</td>
<td>Sq. Meter</td>
<td>Cost Land Only</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>20 Third</td>
<td>4.61</td>
<td>1884.51</td>
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</tr>
<tr>
<td>21 Third</td>
<td>2.3</td>
<td>880.77</td>
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<tr>
<td>43 Third</td>
<td>2.65</td>
<td>1110.64</td>
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<tr>
<td>48 Third</td>
<td>2.79</td>
<td>1129.73</td>
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<tr>
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<td>3270</td>
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<tr>
<td>16 Liberal</td>
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<tr>
<td>200 Interlaken</td>
<td>1.46</td>
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**Contribution Costs**

<table>
<thead>
<tr>
<th>Type of Construction</th>
<th>Cost Per Sq $</th>
<th>Sq. Meter Costs</th>
<th>Multiplier</th>
<th>M Per Person</th>
<th>Total Square Meter</th>
<th>Square Root (in side of square)</th>
<th>Total Cost of Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing + Collective Space</td>
<td>1.2</td>
<td>322.80</td>
<td>322.80</td>
<td>5</td>
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</table>

**Building Costs**

<table>
<thead>
<tr>
<th>Building</th>
<th>Cost Per Unit</th>
<th>Total Units</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>Material</td>
<td>1,200,000.00</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Labor</td>
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<td>-</td>
</tr>
<tr>
<td>Equipment</td>
<td>50,000.00</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

**Equipment Costs**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Cost Per Unit</th>
<th>Total Units</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>50,000.00</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work</th>
<th>Cost Per Person</th>
<th>M Per Person</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>500</td>
<td>50</td>
<td>500</td>
</tr>
</tbody>
</table>

**Households**

<table>
<thead>
<tr>
<th>Households</th>
<th>156</th>
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</thead>
</table>

**Site Area**

<table>
<thead>
<tr>
<th>Site Area</th>
<th>35000</th>
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<th>15000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>$73.00</td>
<td>$51.00</td>
<td>$25.00</td>
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<tr>
<td>Maintenance</td>
<td>$37.00</td>
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<td>$17.00</td>
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</table>

**Loan Costs**

<table>
<thead>
<tr>
<th>Loan</th>
<th>Loan Amount</th>
<th>Loan Length</th>
<th>Monthly Loan Cost per $1000</th>
<th>Monthly Loan Cost per $10000</th>
<th>Utility, Loan Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>$46,665,662.13</td>
<td>30</td>
<td>$1,651.35</td>
<td>$51,240.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>10%</td>
<td>$42,548,662.38</td>
<td>30</td>
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<td>$1,000.00</td>
</tr>
<tr>
<td>15%</td>
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**Other Costs**

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<th>25000</th>
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</thead>
<tbody>
<tr>
<td>Loan</td>
<td>$41,527,023.36</td>
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<td>$41,527,023.36</td>
</tr>
<tr>
<td>Utility, Loan Fees</td>
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<td>$1,000.00</td>
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</tbody>
</table>

**Loan Rates**

<table>
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**Conclusion**

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</tr>
</tbody>
</table>

226
Pallet

Normal Dimensions American: 40" x 48" x 60 - 90"
Weight: 60" = 1,360kg (3,000 lb)

Container Truck

Capacity: 40 - 42 pallets
49.2 M³
Load Height: 5'

City Delivery Truck

Capacity: 20 pallets
24.6 M³
Load Height: 5'
3.5 Technical Research for Design Proposal

OTIS Hydraulic Freight Elevator

Car Gate: 3m, Double Section, Power Operated
Front and Rear Entrances
Speed: 50 - 100 fpm
Weight: 5,500 kg

Custom Industrial Products Inc.
Four Post Series Lift

Weight: 13,600 kg
Speed: 20 - 25 fpm
Levels/Stops: 6 max
HYSTER Forklifts
Capacity: 2,200 kg -- 6,800 kg
Elevated Height: 3.4m
Engine: GM 4.3L V6, Kubota 3.8L Tier 4i Turbodiesel
Speed: 12.3 mph
Lift Speed: 104.3 ft/min

RAYMOND 7500 Reach-Fork Truck
Capacity: 1,500 kg -- 2,040 kg
Elevated Height: 11.25m
Battery: 36 volt

DEXION Standard Wide Aisle Rack
Adjustment: 50mm
Max Height: 30m
Depth: 800, 1000, 1100, 1200 mm
Length: 1500 to 5000mm
Load Per Level: 5000 kg

4' x 8' Sheet Material Storage

230
Material Flows
TOTAL MAXIMUM DAILY FLOW
110 pallets (10% In, 90% Out)
15 Pallets In
95 Pallets Out

Wood + Metal Production System
Worst case scenario for wood production would be 10 units / hr x 20 hr of production + 20% waste of mixed items, small, medium, large = 75 M³ of wood. Metal output would be same products, input would be much less, I assume (2.5 M³)

Cabinet
Bookshelf
Chair
Bowl

Material In Volume Out
7.5 M³ 100 M³

Textile Production System
45m length of cuts = 1 min to cut (4 pairs of pants)
Assume it takes 2 min to clear the machine, and an automated machine will select the next bolt of cloth to load. This is 3 min per 4 pieces of clothing. To round up, let's just say one minute per piece of clothing. This means in an hour 15 sheets can pass through, or 45m. This is half a bolt an hour. In an 8 hour day this is 4 bolts a day and 480 pieces of clothing. In an 20 hour, lights out, this is 10 bolts 1200 pieces of clothing. A bolt = 90m or 45m of cloth. Assuming final pieces are folded, they have a certain volume assumed to be roughly (X)

Material In Volume Out
5.25 M³ 15 M³
**Deliveries**
Assuming material deliveries are mostly from 40' trucks, each with 5 deliveries, the community would get 8 pallets per truck, therefore, 2 deliveries per day at minimum. Deliveries out at 75% capacity in small trucks requires 6 trucks.

![Deliveries Diagram](image)

**Deliveries In**
8 Pallets Per Truck

**Deliveries Out**
15 Pallets Per Truck

---

**Required Storage (1 Week)**
Assuming worst case scenario for storage of raw-materials for production for 1 week = 105 Pallets
Assuming worst case scenario for storage of products to deliver for 1 days = 95 Pallets
Additional storage for unknown = 25 Pallets

Total Required Pallet Storage = 225
At 3 pallets stacked = 75 columns

![Storage Diagram](image)