A Process of Subdivision:
Creating a Therapeutic Environment for a Northampton Mental Health Community
by
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B.A. Art and Architectural History, 1992
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Submitted to the Department of Architecture in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology

February 1998

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Thesis Committee

In addition to Bill Hubbard as thesis advisor, my thesis committee consisted of two other readers who were crucial to the process of this Master's Thesis

Shun Kanda, Senior Lecturer

Mark Jarzombek, Professor of History, Theory, and Criticism
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Abstract

This thesis explores the fractal behavior of subdivision through the design of a new mental
health community in Northampton, Massachusetts. The underlying premise of this thesis
is that it is therapeutic for a person to have a sense of place. Creating a sense of place is
accomplished through the development of a site plan and building system based on the his-
torical system of plot division and subdivision by which Northampton was formed. Once the
principles of Northampton's pattern of subdivision are abstracted, the proposed new site
plan becomes an exposition of the operation of these principles. The result is an intensi-
fied landscape, with a juxtaposition of a range of sizes from the largest void to the largest
solid. These abrupt changes in scale are beneficial both in their architectural and didactic
quality.

The second part of the thesis explores whether architectural value can be extracted
from a land pattern. Through the development of a gym (largest collective size), a proto-
typical house (smallest individual size), and a library (mid-size), various issues of siting,
enclosure, and structure are explored. Through the fractal behavior of subdivision, the
smallest elements of a house become integral to the overall site plan, creating a stronger
sense of place.

The program of a mental health community and the site in Northampton therefore serve
as a vehicle to explore the fractal behavior of the city's formation, and to examine to what
extent this system of subdivision can be applied to architecture.

Thesis Supervisor: Bill Hubbard Jr.
Title: Adjunct Associate Professor of Architecture
Acknowledgments

I would like to express my gratitude for my inspiring thesis advisor, Bill Hubbard, for his enthusiasm, support, and intellectual guidance in keeping my sometimes straying mind from wandering off the path of this thesis. I would also like to thank Professor Mark Jarzombek and Shun Kanda, who both played not only a crucial role in this thesis, but also contributed a great deal to my architectural education at M.I.T. Finally, I am grateful for my family and Alethea for the moral support needed in getting me through my Master’s Degree.
A Process of
Creating a Therapeutic Environment for a Northampton Mental Health Community
Sub division
"In the ancient Chinese cosmology, which considered Heaven round and Earth square, space is imagined as a series of imbricated squares...(with) four gates at the four cardinal points towards which the cosmic influences converge...Chinese architecture, which was viewed as the crystallization of this harmony, incorporates some essential principles of the ancient theories, such as orientation, pure geometrical forms, and a symmetry that mirrors the alternation of summer and winter, night and day. Architectural space is like a series of closed worlds, of complete independent, progressively smaller units—from the town to the private house—which repeat on a reduced scale the forms of the larger units. A house may be viewed as a town in miniature; the town as a house on a vast scale. This conception matches on the moral and social plane the supreme importance of balanced overlapping relationships between individual and family, human order and cosmic order. This interplay of relationships strengthens the independent family cells, just as the symbolic organization of space harmonizes the architectural units. In practice, each community—whether town or household—enjoys great autonomy, but this decentralization is never a symptom of anarchy. In China the arrangement of space has always been governed by laws."

from Living Architecture, Chinese p. 10
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1. History of System of Subdivision
Cole introduced into painting the terms of the great debate over natural resources that has divided Americans ever since. Is the virgin bounty of nature just a resource, put there by God for man's use? Or is it the sign of his presence in the world, so that to destroy it is sacrilege? Cole's vista of the Connecticut River from the top of Mount Holyoke is both lyrical and ominous. In the golden distance one sees small farms around the river's curve (an oxbow is also a yoke, a symbol of conscious control over raw nature). But to the left is the uncontrollable: a storm blowing up, and the relics of past storms in the splintered trunks of blasted trees. Man's mystery is tenuous, but the eye of the viewer can run out into great space, the American promise.

Thomas Cole
View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm: the Oxbow, 1836
The Metropolitan Museum of Art, New York
from Robert Hughes, American Visions, p. 104
1a. Development of the Region

The underlying structure of Northampton's formation is, at first, perplexing. After growing up in Northampton for eighteen years, I was frustrated about not being able to understand the town's underlying structure or pattern. After studying the area's history through a combination of topographic and cadastral maps, I discovered a pattern of subdivision. I realized that I had a more powerful sense of place from simply understanding how the area I came from evolved to its current state.

Once I discovered this pattern, it occurred to me to develop a thesis to work with a therapeutic environment based on the principles extracted from this study, and to examine how far the potential fractal behavior of subdivision could be pushed. The question I posed was whether I could discover architectural value out of the pattern of a city, and whether the pattern could serve both as a didactic tool, with the architecture and the site plan being integral, and to have the pattern architecturally pleasing at the same time. In other words, could this system be internally consistent as fractal behavior, and at the same time be evaluated through traditional conventions of space making?

Located along shelves just above fertile intervale of the Connecticut River, Northampton was first inhabited by Native Americans due to its rich farm land and connection to a waterway. At the macro-territorial level, Northampton's founding was the result of two major carriage paths crossing, one West and East leading from Boston to New York, and one North and South along the Connecticut River. This crossing point became the location of town hall and main street.1 These two roads not only connect the city to the larger territory, but they also create the first four land divisions.
“Whatever their form, land ownership (cadastral) patterns are among the most persistent features of the human landscape. Rooted in both the land and the possessive attitudes of owners, parcels are troublesome to reshape. General patterns may persist even after subdivision has created new boundaries. Vacated property lines may survive as visible features in field boundaries, vegetation boundaries, fence and hedge lines, or roads.”

from *Dividing the Land* p. 6

The New England Stone walls that run for miles through woodlands were once actually definitions between neighboring farms. One hundred fifty years ago, eighty percent of the area was cleared and farmed. Much of that farmland has returned to forestland. from *Sermons in Stone* p. 16

photo from *Across America*
The development of the fabric and structure of Northampton provides a unique insight into the transferral of an English system of farming to America. The Northampton model is sometimes called a “highway village,” a form of building in layers on linear shelves along a river. What is unique in the case of Northampton is the fact that it is neither an early form of a packed community around a town green, nor a result of the New England township system (which anticipates the rectangular survey system of the West), a system which almost completely ignores the local topography. Northampton is neither the result of circumstance nor the result of will. It is somewhere in between.

The Connecticut River meanders and tries to negotiate its way through the mountain pass, causing the oxbow in the lowlands and depositing some of the most fertile soil in the Northeast. The smaller Mill River, which empties into the oxbow, also negotiates around the drumlins in the landscape.
A classic example of a "big house, little house, back house, barn" in the neighboring Hadley, Massachusetts. These lots actually extend back into the tobacco fields with lines of tobacco barns in rows.
Settlers moved from Springfield and Boston to form a new township in Northampton. They were granted a township from the General Court of Massachusetts of approximately six miles square, and they subsequently began trying to divide the land into farms. Later, in New Hampshire and Maine, these townships were planned rapidly and from a distance, giving way to a system of plot division which completely ignored the local topography. What is interesting about Northampton is that its subdivision is somewhere in-between.3

In Northampton, the farms had to negotiate around the hills while the town expanded outward. Due to threats by Native Americans, the farms were packed together, and at one point there was a palisade around the entire center farms for protection, creating almost a “town lot” in relation to the larger territory.4
Excerpt showing typical fabric subdivision from a map of 1855 from Forbes Library, Northampton, Massachusetts
Once the farm lines were drawn, the settlers began to subdivide the farms in a way which seemed almost unrelated to their neighbors. In the early 1800s, it was possible to find one farm completely subdivided into small lots, with two roads, while the neighbor would still be farming. It is in this state where the divisions become most interesting, with great contrasts in scale juxtaposed.
The town of Hadley, also created in the 1650s, only a few years after Northampton was settled, provides the perfect example of how the settlers of Northampton would have inhabited the land had it been on flat ground rather than in tiers along the river. The farm lots in Hadley, granted to each proprietor, were essentially the same size as in Northampton, four acres for each household. However, Hadley lots were laid out differently. Rather than having four chains along the road, as in Northampton, the lots in Hadley were usually only one chain, or sixty-six feet across. This is explained by the fact that the lots were on flat ground, and the settlers did not have to compensate for narrow tiers of land by widening the property as in Northampton. In other words, the plots in Hadley could be long and narrow, a form which was more suitable for farming, rather that the short and wide plots of Northampton.

Because Northampton farm plots were short and wide, many subsequent subdivisions were created, while Hadley plots today remain the same as the original, almost impossible to divide. Perhaps this explains, more than any other factor, why Northampton has grown while Hadley has remained relatively unchanged. Northampton therefore is a perfect example of an open system of land division which combines the natural topography with the will of humankind to inhabit the landscape.
The 1890s were a time of increasing institutionalization in America. Because the development of farms created a fabric which negotiated around the drumlins, hills were left open, and were available for other uses such as for locating schools and institutions. It was during this period that the Northampton High School, the Clarke School for the Deaf, Smith College, and the "Northampton Lunatic Asylum" were founded.
1b. Subdivision of Northampton

After the original two crossroads had been established "naturally" to locate the town hall, the settlers began to inhabit and divide farms along the upper shelves above the fertile intervale. The first roads therefore follow these tiers linearly along the river. The divisions were then made perpendicular to these roads, dividing land among the proprietors in six acres for those men with families, and four acres for those men without. These initial farm divisions, invisible lines drawn in the sand, provided the entire structure for the subsequent development of the town of Northampton.
ROBERT FROST'S

Something there is that doesn't love a wall,
That sends the frozen-ground-swell under it
And spills the upper boulders in the sun,
And makes gaps even two can pass abreast.
The work of hunters is another thing:
I have come after them and made repair
Where they have left not one stone on a stone,
But they would have the rabbit out of hiding,
To please the yelping dogs. The gaps I mean,
No one has seen them made or heard them made,
But at spring mending-time we find them there.
I let my neighbor know beyond the hill;
And on a day we meet to walk the line
And
set
the wall between us once again.
We keep the wall between us as we go.
To each the boulders that have fallen to each.
And some are loaves and some so nearly balls
We have to use a spell to make them balance:
"Stay where you are until our backs are turned!"
We wear our fingers rough with handling them.
Oh, just another kind of outdoor game,
One on a side. It comes to little more:
Where there it is we do not need the wall:
He is all pine and I am apple orchard.

"MENDING WALL"

My apple trees will never get across
And eat the cones under his pines, I tell him.
He only says, "Good fences make good neighbors."
Spring is the mischief in me, and I wonder
If I could put a notion in his head:
"Why do they make good neighbors? Isn't it
Where there are cows? But here there are no cows.
Before I built a wall I'd ask to know
What I was walling in or walling out,
And to whom I was like to give offense.
Something there is that doesn't love a wall,
That wants it down." I could say "Elves" to him,
But it's not elves exactly, and I'd rather
He said it for himself. I see him there,
Bringing a stone grasped firmly
by the top
In each hand, like an old-stone savage armed.
He moves in darkness as it seems to me,
Not of woods only and the shade of trees.
He will not go behind his father's saying,
And he likes having thought of it so well
He says again, "Good fences make good neighbors."

By 1900, some of the plots have been completely subdivided, while the farm next door remains open. The boxes refer to the areas diagrammed on pages 27 and 29.
In 1712, the farm houses were set back from the road on the lot, separated from their neighbors. The term “house lot” comes from the fact that a lottery was held with the initial settlers in order to have a fair disbursement of land.  

One plot division may have a road running through the middle, with divisions on both sides. The first houses try to maintain themselves on the main road, followed by a change in direction of the plots on the new side-roads. Cross streets begin when the plots become too deep. The roads cutting across the plot of one neighbor may not line up with that of another, further accentuating the lots' independence from each other.
Diagrams, evolution of land division
In the 1850s, one could find larger public buildings, such as schools, built on a plot of donated land within this smaller scale fabric of houses. Again, it is this juxtaposition of scale which is most interesting architecturally. This fabric is not “planned,” such as a main street with public buildings along it, but rather appears random and open to the whims of one neighbor in contrast to the other, creating a more diverse environment.

Each building sits closest to the road on its lot, and furthest from its neighbor. With the growth of back buildings and additions, the older houses can be read as having a definite direction. Each building has a “face” to the road, a back, and sides. There is as much “slack,” or space, between two objects and their boundaries as possible.
Diagrams, evolution of land division
A Victorian house surrounds my grandfather. The house is brown, covered with asbestos shingles my grandfather put on to protect the original wood. It stands at the entrance of the Big Y supermarket, and a thin layer of asphalt covers the soil where my dad and his brother once picked asparagus on the family farm. I haven’t seen JaJa (Polish for grandpa) in a while. My dad, older brother and I bring him two cheeseburgers and an order of fries from Burger King every Saturday for lunch. We walk through the gate and past the mailbox, bolted and strapped to an old tree trunk. The T.V. is on so loud he doesn’t hear us knock, so dad gets the key from behind the stuffed deer head on the porch wall. “Hello-hello!” my dad yells. Inside, my brother and I look at the door jamb where we have marked our heights every birthday. I run and stand as my brother checks to see if I have grown since last month when I turned nine. “Dad! How are you?” my father says in a loud voice so my father can hear. “Good-good-good!” JaJa exclaims, “sit down, sit down.”

The house is cold and dark, even during the day. The venetian blinds are pulled down, but strong streams of light still find their way through some of the broken flaps. Since my grandmother, Bopschie, died five years ago, the place hasn’t been cleaned, so there is a soft blanket of dust over everything. Barbie, the ten year old Chihuahua, stands on top of a chair and barks through its little graying beard. “Quiet, quiet,” Jaja says, shaking his head, as he cracks the blinds and peers out. “Dear diary... those Puerto Ricans were back last night, throwing stones at my window. They don’t listen to Barbie anymore, that’s for sure. Ever since they built those projects across the street, this neighborhood has really gone down hill.”

I have to go to the bathroom, so I open the curtain at the bottom of the stairs. I am hit by a blast of cool air. The top floor has been blocked off to keep the heating bills down, with a layer of fake wood paneling covering the side of the once-open staircase. In the master bedroom, a picture of Bopschie sits on a table under the window. Leaning in the corner is my grandfather’s shotgun, the one that probably killed that deer. I look out across the street at the Hampshire Heights, a large block of brick buildings, and wonder if Izzy Ortiz, a friend of mine on the baseball team, lives there. There is a large fence with heavy weeds which surrounds the whole complex, with parking lots between the buildings. There are a few nice cars, but most are old and beat up. Next door, I hear the sound of two kids bouncing a ball, but they are out of sight over the hedges.
In the bathroom, I hear my father through a small vent in the floor. “Dad, why don’t you let
some light in this place?” I hear the blinds go up. “Don’t open those,” JaJa exclaims. “If
those kids are around, they might throw a stone at me,” my grandfather replies. “Yesterday,
I caught a few of them knocking my mailbox over again, and when I came out they just laughed at me.
Those Puerto Ricans are a bad bunch.”

When I came back down the stairs, my dad and JaJa are sitting and watching the Red Sox
on the television. My brother and I look through a stack of tabloid magazines. Once a week
JaJa goes to the Big Y and buys the Star, National Enquirer, and Weekly World News. He talks
to my dad about the attack by aliens in a small Texas town, and the vampire boy found in
France, as if they are real events. Even I know those aren’t real, I think to myself.

It is time to take Barbie to go the bathroom in the backyard. This is the only time the dog
is able to run around. My grandfather doesn’t go outside anymore, except with us. It takes a
few minutes for my eyes to adjust to the bright afternoon sunshine as we walk out on the porch,
past the deer head, and down the path around the corner of the house. A basketball comes
over the hedges and bounces on the grass in front of us. My grandfather picks the ball up. One
of the kids sticks his head through the bushes. He is about my age, but I have never seen him
before. “Don’t you come on my property, young man,” JaJa yells as the kid tries to apologize.
Then JaJa turns and gives me the ball. “Here Scotty, you take this ball.” I look at my dad, and
take the ball. “Those kids keep wrecking my bushes coming through there,” JaJa says.

It’s time for us to go, so my brother and I get in the car. My dad has to make sure JaJa
gets in the house safe, walking him back up the path around the corner. JaJa has bad knees,
which only get worse from his lack of exercise. As we wait in the car, I hold the ball and look
out across the Big Y parking lot, and imagine my grandfather going across an open field on his
plow with my father behind him.

Essay
from Mark Jarzombek’s Thinking About Architecture course, 1996
English acre, 1/10 ratio

from Taking Measures
1c. System of Land Measurements

A system of subdivision of farmland in Northampton has produced an imposed and understandable structure upon the landscape. The invisible original property lines, which comprise this structure, remain unchanged, and combined with the topography and subsequent subdivision, have produced a rich and yet understandable environment. These farmland divisions are rooted in the system of farming measurements brought over by the inhabitants from England. Central to this system of measurement is the English acre.9
**Gunter's chain**
- 66 feet long / 100 links / contains 4 rods (16.5 feet long)
- 10 square chains = one acre
- acre = 1/8 mile long - furrow long - easier to plow
- 1/10 ratio - only way acres fit into a sq. mile
- 80 chains = 1 mile
- city block = 3 chains
- telegraph poles - 1 or 2 chains apart
- width of city street / canal = 1 chain
- farm plots - 4 chains wide on road

From *Dividing the Land*

<table>
<thead>
<tr>
<th>One mile</th>
<th>One furlong</th>
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A precursor of the modern measuring tape, the sixty-six-foot long Gunter's chain could not have been light to carry or easy to use in the cold winter months. It was made of malleable iron and consisted of one hundred links with a handle at either end.

From *Sermons in Stone*
Central to these farming measurements (and therefore the subsequent dimensions of the city fabric) is the English acre, established in medieval times as the size of a field which one man could plow with a yoke of oxen in one day. It is linear in form, with a one to ten proportional ratio, so as to create a minimal amount of turns for a farmer and his team. The longer length is a furlong, which comes from “furrow long,” as in the ridges and furrows of a field. The system was regularized in Gunter’s chain during the 1600s. A chain is 66 feet long and consists of 100 links. Therefore, an acre is one chain (66') by 10 chains (660'). What is interesting is the fact that it is only this proportion (1/10) which will allow acres to fit in miles. In other words, there are 640 acres in a square mile, but the only way to fit 640 acres into a square mile is in this form. 640 acres in the form of squares will not fit in a square mile. It is the measurement of the furlong (1/8 mile) which fits the measurement of agriculture (acres) into miles.

<table>
<thead>
<tr>
<th>A SECT1N OF LAND—640 ACRES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A rod is 16 1/2 feet.</td>
</tr>
<tr>
<td>A chain is 66 feet or 4 rods.</td>
</tr>
<tr>
<td>A mile is 320 rods, 80 chains or 5,280 ft.</td>
</tr>
<tr>
<td>A square rod is 272 1/2 square feet.</td>
</tr>
<tr>
<td>An acre contains 43,560 square feet.</td>
</tr>
<tr>
<td>&quot; &quot; 160 square rods.</td>
</tr>
<tr>
<td>&quot; &quot; is about 208 1/3 feet square.</td>
</tr>
<tr>
<td>&quot; &quot; is 8 rods wide by 20 rods long, or any two numbers (of rods) whose product is 160.</td>
</tr>
</tbody>
</table>

25×125 feet equals 0.0717 of an acre.

<table>
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<th>CENTER</th>
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<tr>
<td>OF 20 CHAINS, 1,210 FEET.</td>
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</table>

<table>
<thead>
<tr>
<th>SECTION</th>
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<tbody>
<tr>
<td>10 CHAINS, 20 CHAINS, OR 3,240 FEET.</td>
</tr>
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</table>

The section of land, as the land division measurement of the rectangular survey system of the West, had its origins in the Northeast.
“In Old England, the mile - derived from the Roman “mille passus” or double steps - was originally 5,000 feet long as in the Roman definition (1 "passus" = 5 feet). Later, it took 5,280 feet to accommodate exactly 8 furlongs, the most popular measure of the time...It should be noted that the furlong comes from the Greek and Roman *stadion*, which they themselves inherited from more ancient times.”

from The Encyclopedia Britannica Web Page, furlong
11 Air photo of the center of Naples, together with a plan of the corresponding streets of the original Greek colony of Neapolis ("new city"), whose streets followed the typical pattern called per strigas (by row, or furrow). The defensive wall is related to the form of the ground, and not to the street pattern. This layout has persisted for 2600 years.
Your Search: furlong

Britannica Online contains at least 10 items relevant to this query.

- **furlong**
  old English unit of length, based on the length of an average plowed furrow (hence "furrow-long," or *furlong*) in the English open- or common-field system. Each furrow ran the length of the $40 \times 4$-rod acre, or 660 modern feet. The standardization of such linear units as the yard, foot, and inch—began in Edward I's statute of 1305—recognized the traditional sizes of rods, *furlongs*, and acres as fixed and therefore simply redefined them in terms of the newly standardized units. Thus, the *furlong*, often measured as 625 northern (German) feet, became 660 standard English feet, and the mile, always 8 *furlongs*, became 5,280 feet. Today, the *furlong* is used almost exclusively in horse racing.

- **mile**
  any of various units of distance, such as the statute mile of 5,280 feet. It originated from the Roman *mille passus*, or "thousand paces," which measured 5,000 Roman feet, or 4,840 English feet.

- **acre**
  unit of land measurement in the British Imperial and U.S. Customary systems, equal to 43,560 square feet, or 160 square rods. One acre is equivalent to 0.4047 hectares (4,047 square metres). Derived from the Latin *ager* ("field"), the term *acre* originated in the primitive technique of measuring land by the oxen needed to plough it or the seed needed to sow it. The Anglo-Saxon *acre* was defined as a strip of land $1 \times \sqrt{10}$ *furlong*, or $40 \times 4$ rods (660 x 66 feet). "Acre" gradually came to mean a piece of land of any shape measuring the present 4,840 square yards. Larger variant acres include the Scottish, the Irish, and the Cheshire.

“Now would I give a thousand furlongs of sea for an acre of barren ground.”

Act i. Sc. 1.
William Shakespeare
The Tempest
Acre Project

The acre, as a measurement of land, is a measure rooted in a cyclical daily human activity. What seems an arbitrary measure, one-eighth of a mile, is actually a fur-

long, a distance farmers have known as the distance after which they should turn around. I was therefore interested to get a sense of this size, if this was the dimension of Northampton's land division and the basis for measurement on the new site plan I was to develop.

With hundreds of surveyor's flags, a simple rope the length of a chain (66'), and a couple of "volunteers" (my father and father-in-law), I set about laying two examples of acres across the site. After taking photos, I was disappointed at what appeared in the photos as a small rectangle. In reality, I knew just how long this space actually was. What appears on the site plan (looking from above) to be a huge intervention on the landscape is in reality highly collapsed due to perspective, and in contrast to the huge scale perceived in the open landscape.
Acre project, looking east
Like a carpet laid over the land, the site on this hillside offers a view east over the city of Northampton and to the mountains beyond where Thomas Cole made his famous painting of the oxbow in 1836.

"As China has its Great Wall, and Christo his running fence, New Hampshire has this high voltage power line pathway cut with cold precision across the slopes of the White Mountains."

from Over New England, p. 249
Acre project

Marcel Duchamp, Nude Descending a Staircase, No. 2, 1912
from The Visual Arts: A History
2. System Applied to the Site
1877 Map
from Forbes Library, Northampton, Massachusetts
Original building, c. 1858
from The Life and Death of Northampton State Hospital

from Northampton State Hospital Master Plan
2a. Northampton State Hospital Site

Founded in 1856, the Northampton State Hospital, recently closed, was the third mental health facility developed in Massachusetts and the first to serve Western Massachusetts. Ownership of the site, which contains fifty-five acres and forty-two buildings, has recently been transferred from the Commonwealth to the city of Northampton.11

In the nineteenth century, the “Northampton Lunatic Hospital” was essentially “the hill across the river” from the city. Today, this parcel has remained open, while the fabric of the city has begun to encroach, creating a figure-ground reversal. Smith College subsequently developed next to the site at about the same date in history.

The question of what to do with the closed “State Mental Health Facility” (the gentler name later given to the “Northampton Lunatic Asylum”) is at the forefront of city politics in Northampton. Preservationists want to save the original buildings, but give them a new use as offices or high-end condominiums.12 However, it is difficult to erase the memory of a site’s history.

My stance for this study is that the site should be wiped clean of its buildings, which stand as a physical reminder of a time when mental illness was treated on this hill, in an institution, keeping the patients far away from the rest of society. What is more crucial, in order to retain this memory of this important site is to actually keep the original function of the site alive by creating a new mental health community. The idea is to create this new community in a form which is non-hierarchical, undetached from the rest of the city. Rather, I propose the creation of an environment which is therapeutic in its ability to make people understand the surrounding city fabric, by actually living in a small piece of that fabric, a piece which explains how the city came to be and how it works today.
2b. Development of Program

My site plan explores the differences between the top, middle and lower zones of the site. The top of the hill is where the "original farmhouses" would have been. I have placed here, by analogy, seven dining houses. The middle zone, stretching across the site, is where some woodlands exist today and will remain. This is where, traditionally, some livestock would have been kept and firewood would have been harvested. Finally, at the bottom of the hill are lowlands, where there would have been agriculture. In this lowland area, there will be athletic fields, dance halls, farming, and most of the subdivision for housing.

In my initial attempt to understand the site, I utilized blocks of activities to explore continuities and juxtapositions of functions. In my plan, farming is considered just another activity, placed next to a plot of athletic fields and lawn bowling to the north. To the south, in high contrast, is a dense fabric of housing, and a gym, the largest object on the site. These contrasts in scale and density make the site more interesting architecturally as well as more didactic. It is only in this state, before full subdivision takes place, that the principles of subdivision can be fully experienced. Once designed, the site plan is built all at once and frozen. The site, therefore, becomes an exposition of the operation of the principles.
Program

400 units of housing
- min. req. 80 SF/person - single room
- min. req. 70 SF/person - group room

Library (probably a small branch) 10,000 SF

School/Education Center 10,000 SF

Dining Houses (These will be on top of the hill in the original farmhouses)
- 7 farmhouses 1,500 SF (1st Floor)

Cafeteria requirements
- dining = 15 SF/person
- kitchen = 1/3 to 1/2 dining area
Total area need for 60 people is 1,350 SF - (farmhouses are OK)

food and vegetable stand (next to road)

Gymnasium (lap pools)

Athletic Fields (soccer/basketball/baseball, shuffleboard/lawn bowling)

Performance Space
- auditorium 2000 SF for 200-250 seats
- art gallery 1500 SF
- ballroom 2200 SF

from The Life and Death of the Northampton State Hospital
“For all its assumed monotony, the National Survey Landscape is incredibly diverse when experienced first hand...everyday life upon the land has evolved a rich and delirious landscape, a complex imbroglio of farmsteads, diners, gas stations, crop dusters, motels, floods, tornadoes, baseball, cornfields, towns, hillsides, plains, conversations, arguments, dances, sunrise, snow and drought.”

from Taking Measures, p. 37

<table>
<thead>
<tr>
<th>Common farming</th>
<th>4 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other outdoor activities</strong></td>
<td></td>
</tr>
<tr>
<td>-open plot for sledding</td>
<td>1 acre</td>
</tr>
<tr>
<td>-ice skating pavilion</td>
<td></td>
</tr>
<tr>
<td>-boathouse</td>
<td></td>
</tr>
<tr>
<td>-dance pavilion</td>
<td></td>
</tr>
<tr>
<td>-riding barn</td>
<td></td>
</tr>
<tr>
<td><strong>Indoor activities</strong></td>
<td></td>
</tr>
<tr>
<td>-machine shop/paint shop</td>
<td></td>
</tr>
<tr>
<td>-hobby shop/pottery shop</td>
<td></td>
</tr>
<tr>
<td>-carpentry shop</td>
<td></td>
</tr>
<tr>
<td><strong>Farm buildings</strong></td>
<td></td>
</tr>
<tr>
<td>-horse barn</td>
<td></td>
</tr>
<tr>
<td>-barn for wood storage/sheep-piggery-chicken coop</td>
<td></td>
</tr>
<tr>
<td>-young cattle</td>
<td></td>
</tr>
<tr>
<td><strong>Daycare Center</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Kennel</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Greenhouse/Orchard</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Offices</strong> (All staff live on the site)</td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td></td>
</tr>
<tr>
<td>Psychiatrists</td>
<td></td>
</tr>
<tr>
<td>Social Workers</td>
<td></td>
</tr>
<tr>
<td>Nursing Administrators/Dietitian/Other Staff</td>
<td></td>
</tr>
</tbody>
</table>
Tobacco fields and barns, Hadley, Massachusetts

Lines of trees mark the area in which a road once lay, Hadley, Massachusetts
2c. Development of Site Plan

The site plan is an imagined, didactic unfolding of the process of subdivision of Northampton. The Northampton State Hospital site provides an ideal location for this exploration. Located just to the west of the downtown, the site is a microcosm of the city as a whole. The city, built on terraces, faces east above the low-lying intervale of the Connecticut River. Roads run along ridges, with houses built along the road, with the ideal farm being a slice of woodland, farmland and a water connection.

Similarly, the hill of the Northampton State Hospital site faces east and overlooks the city of Northampton. It too, has its own river, with a high ridge, a middle woodland, and a low intervale. The intervale is a furlong (1/8 mile) long, allowing the English farming dimension of the acre to be experienced.
Principles of subdivision

There is always slack between the object and the edges of the plot it is located in.

Therefore, there is always slack between objects.

The plot and the object are directional.

The object is placed closer to the street than the back.

Lot divisions always run perpendicular to the street, and are divided from front to back of the previous lot.

The object has a "face" to the street, a back, or tail, and sides.
Central to this thesis is the idea that it is therapeutic to know where one is. Orientation, not only physically but historically, is crucial to the creation of this mental health community. The first step in understanding one's place is to understand how Northampton developed across the river. Therefore, a system of initial farms will be established on the site, and a subsequent subdivision.
"In response to the meandering nature of the river and the need of settlers to have their own access to the river frontage, straight lines were drawn perpendicularly to the river's edge to delineate property parcels, or long lots. Each long lot had a river frontage of two to three arpents (384-576 feet) and was typically ten times as long as its width. Because each occupant had access to the river, the fertile floodplain soils, and the higher protected land at the end of the lot, they all shared the benefits and dangers of settling along the river."

French long lot settlements along the Mississippi
from Taking Measure, p. 62
Seven “farms” are laid out. My first historical observation is that the hills were never farmed, but were rather later inhabited by institutions such as the Clarke School for the Deaf, the Northampton High School, and the Northampton State Mental Health Facility. The hill is therefore an inappropriate site if one is to “de-institutionalize” this new mental health facility. Rather, the low lands along the east side of the hill will be inhabited.
Rows of trees define the initial farm plots

from *Over New England*
The first "natural road" along the site is at the first tier along the river, which is at the top of the hill. The seven farms divide perfectly into six acres each, running parallel from the road to the river. This provides the ideal model for a farm, with the uplands for the house lot and small gardens, the hillside for raising sheep, and pigs and for supplying woodlands, the meadow for farming, and a connection to the river for transportation.
My next step was to subdivide the lots using the same rules as occurred in Northampton. However, rather than subdividing to the point where the city is today, to its smallest subdivision, I created a form somewhere in-between. This allows the system of subdivision to be more evident.
It becomes most clear and most interesting when there is a contrast in scale and density from one lot to the next. In other words, one six acre farm remains completely open, and next to it is another farm which "sold its land off" and is subdivided to its densest point, with several hundred inhabitants living in small houses on small lots. Only in this state will it become clear how the fabric of Northampton developed. It is this state of flux which also provides the most diversity in the environment. A large gym may be surrounded by tiny houses, and a farm may be next to a performing arts center. Using the fabric of Northampton as a model, an intensified landscape is therefore created as an exposition of the operation of the principles of subdivision.

The next step is to bring this system of subdivision to the building scale, to make this process of subdivision understandable on the inside, and to be locked into the system of land division on the outside. It is only then that the idea of orientation can be complete, because the inhabitants are always aware of where they are, in an environment which is nonetheless diverse. After being accustomed to this diverse, sometimes random, but always understandable, environment based on a system of subdivision, each inhabitant will have a greater sense of place.

Final site plan, rows of trees mark original seven farms
Every "farm" has a section of upland, woodland, farmland, and a connection to the water.
Figure-ground diagram
from A long Deep Furrow
Figure-ground diagram, proposed site plan within context of Northampton
What is perhaps disturbing from the air, a seemingly rude straight line running across a beautifully undulating natural topography, becomes a wonderful measure, or registration on the ground. Rather than contrasting the natural landscape, this human intervention of the consistent rhythm of a fence in a straight line becomes a strong registration, allowing the topography to become more pronounced, and more understandable. This measure allows the viewer to imagine being both at the top of the hill and at the bottom at the same time, creating a understandable crossing of space in the mind.
3. System Applied to Architecture
3a. Subdivision of the Gym

The first test of my thesis was to abstract principles of subdivision and apply them at the site size. The next challenge was to explore the fractal behavior of subdivision, and to see what architectural value I could obtain from it. If subdivision worked at all scales, then it would be more of a didactic system.

I first tested the system of subdivision with a gymnasium, the largest structure within the community. The gymnasium plot is considered "donated by an owner" without regard to any concept of zoning, and is therefore found in the middle of small house lots. This larger lot of the gymnasium becomes a world within itself once the boundaries are established (a typical result of subdivision). Once defined, this lot can be subdivided once again in the same manner as the whole town was subdivided.

<rocks in the sand>/continuity

Given to need for easy continuities/public movement (GO) and for containment/relative privacies (STOP); this beach offers, in analogue alternative means to both cellular subdivision (by planes of control) and cellular addition to disposed/disported access.

Varying privacies/rocks are field-deployed/juxtaposed/grouped so (that) easy on-going public terrain/sand> has great variation from narrow to wide, closed to open. Material and Form: Differences of physical definition are maximized (ongoing <sand>/surface tension <rocks> while <USE> is never singular (e.g., <rocks> may be public/private. (At a larger size, the <rocks> could be the built form/urban, the sand the unbuilt/landscape.)
Gym, figure-ground diagram
A plan of a cattle shed and other farm buildings designed in the 1880s may offer clues as to how to have one single, large building and still have various parts of the buildings associated with divisions of the landscape outside. This cattle shed sits as an object on a lot with one roof. The building is then divided into A,B,C which associate, or open out to, fenced-in areas outside the building (1,2,3,4,5). Various doors and gates allow the cattle to be in one division of the lot at one time. A sense of the whole and the relationship of the parts is clear.

from Barns, Sheds and Outbuildings

The first divisions of land (or the building) come with two roads leading north/south and east/west. The roads not only create a route which connects the inside of the building to the larger site plan, but they also form the first four divisions of the gym.

"Houses" are then built facing the road, with a "front" and a "back," essentially creating buildings within buildings, and rooms within rooms. This form of a house can now become a squash court, offices, locker rooms, etc. Most importantly, these houses, or objects, are set within their plots and never actually touch their neighbors. Instead, the behavior of Northampton development shows us that the house sits in the middle of the plot, away from the borders, and closer to the street, giving a "front yard" and a "back yard."

The back yards, or open spaces, created by the placement of the objects, become the more open functions of the gym. For example, the locker rooms of the swimming pool are on the road. The swimmer enters the front of the locker room (as if entering a house), changes, and exits through the back to the pool, which is essentially in the backyard. Rather than having one large locker room and one large pool, this analogy of individual houses on lots suggest an individual locker room and an individual lap pool for each swimmer.
Gym, plan and surrounding subdivisions
Once these initial buildings are established, then even further subdivision can take place. This leads to an unexpected, non-hierarchical space that is experienced in the same way Northampton is experienced, as a series of objects placed on the landscape, which are organized initially by the streets and then by the plot divisions. The enclosure of the gym is then placed around this “landscape”, making an object which refers to the larger scale of the entire site plan.

Other questions began to arise, such as when does the scale get so small that the space between the objects can no longer be passed-through. The answer is that the poche, or slack, between the objects now becomes transparent. For example, the pipes for the men’s and women’s rooms are exposed, so that there is still an association with the landscape, or open space, running between the objects. Another example is that the space between objects become a transparent closet, where the storage takes place. The analogy is the closet behaves like a side yard of a house, in which inhabitants throw the extra things that will not fit in their house.

“The overall impression given by these works was still that of spreading a field of carefully placed objects that rested on the floor like islands, interacting as if unaffected by gravity. Dimensions, spatial intervals and shape all varied non-systematically in Le Va’s laconic manner, so that interaction among the units was stressed over any properties of the units themselves.”

from Art in America, October, 1997, p. 113
The plan does not have to be hierarchical along the roads. One may find some objects facing the "main street," while others face the "cross street." The analogy is not a center-of-town crossroads, but rather the more random subdivision of the typical fabric of Northampton. In the same way that in the site plan one can find a variety of scales, once inside the envelope of the building, the landscape intensifies like a city within itself. There is also an association to the outside, as interior plots run beyond the enclosure to the edge of the exterior plot.
3b. Subdivision of the House

I wanted to know if the system of land division could be carried fractally into the house, the smallest "object" on the site plan. Here, it was evident that the "rooms," such as the locker room, could no longer be analogized as a "house on its lot." The dimensions became too small to have rooms be objects within the open space of the enclosure of the house.

Instead, furniture became the analogue for the house on its lot. For example, when thinking of a house on a lot, the house was the primary place to "be on the street." In the same way, the bed is the "place to be" in the bedroom. The bed therefore becomes the house, or an object which is placed on the hall (or street). This object then defines the street (hall) and the back-yard (the changing area). To make it feel more analogous to a house, a canopy is placed over the bed to become a roof. The entire bed therefore becomes an object, within a larger object of the house. Central to this fractal behavior is the idea that when the resident is lying in bed, he or she is able to associate being on a house in a lot in the larger scale of the community, which is then a microcosm of the city of Northampton.
A bed, as analogous to a house, associates with its own plot of land running from inside to outside. The idea of an internal "street" means the bed unconventionally steps back from the edge of the house and projects itself outward into the landscape. "Back buildings" in this plot, such as a dresser or a doghouse, may further accentuate the association of inside and outside.
Other analogies of a house on a plot give rise to the kitchen table being the "place to be" on its lot. The table, like those of Frank Lloyd Wright, have chairs with high backs (five feet high) which define the space of the table within the larger space of the kitchen. Combined with an overhead light as a "roof," the kitchen table provides the perfect example of a house. The analogy of back buildings give rise to the preparation area. The sink is the analogy for the kitchen, which was added on to the house. The refrigerator and the stove become other back buildings on the lot.

The bathroom is the only room that remains an object (or house) within itself due to the necessary privacy.

Finally, the living room is designed with the fireplace at the front of the room along the hallway. Combined with a couch, a table, and a chair, it becomes yet again the analogy of the house within the lot, as the "place to be" in the room. Other back buildings can arise, such as a desk and chair.

The result is a continuous fractal landscape, with privacies working at all scales, organized by roads and plots which determine location and direction of the objects and allowing for easily understood movement and orientation.
Trees are the only elements that are located on the plot lines. In addition to defining edges and corners of divisions (while still allowing passage through), trees may also determine which division "came first" by its size. The larger trees on the road give reference to the larger ("older") plot divisions, while the younger saplings within the plot of the house associate with the "younger" objects within, such as the bed.
Enclosure

The house brings up issues of enclosure. I wondered how to maintain the house as an object at the larger scale, but also to reflect the four divisions, or houses, on the interior. A glass box seemed ambivalent towards the landscape, as to whether it was made for looking in or looking out. I decided that the enclosure of the houses in this community should behave in the same way that most of the houses in Northampton behave, as simple walls with punched openings. The question was how to have the house read as one object, and yet project the four houses on the interior.

The elevation of Erik Gunnar Asplund’s Villa Snellman provided inspiration for an elevation that worked around the corner. With five bays of windows (top drawing), Villa Snellman implies a static symmetrical facade, and yet the rounded window is not centered, but rather to the side. There are also additional swags at the corners of the building, creating a seemingly incomplete facade. It is only after looking at a frontal oblique drawing (bottom drawing) does the round window and swag make sense, essentially as the center of the front and the side. The experience is described by Val K. Warke in “the Plight of the Object” as “effectively causing the corner to disappear, with the entire new elevation having its phenomenal center at the fanlight” and causing the elevation to be set in rotation.13
House, plan, diagram of solids, and an unfolded elevation, diagram of voids
Examining Villa Snellman by Erik Asplund gave me clues as to how to design around corners to accentuate the fact that this enclosure was really just a wrapper which defines the object at the larger size. On the inside, the landscape could divide further, and the enclosure could project these divisions.

The houses in Northampton express a front or face towards the street, with a facade which is either symmetrical or has a larger picture window. The sides and back usually have smaller windows. Similarly, in the Northampton Mental Health Community, each “house” inside, such as the bed, has a picture window on the front, and smaller windows on the side. What is interesting is the fact that there are essentially four smaller houses (kitchentbathroomliving roombedroom) in this larger house. Therefore, one elevation may have a front and a side elevation combined together. The elevation becomes more like a screen, with the interior projecting itself to the exterior.

Pablo Picasso
from *The Visual Arts: A History*
House, unfolded elevation, working drawing
I imagine viewing the house in the round, in which the house seems to be in rotation. As one moves around the corner, the windows on two elevations come in line, and the corner tends to flatten, or disappear, as the power of the window pattern dominates. What helps are three small clerestory windows above, which are symmetrically balanced on the corner, rather than on one side or the other. The eye becomes static with symmetry around the corner. There are therefore a series of four “L”s which express the four divisions.

Southwest corner

Fig. 108.—SIDE VIEW OF MR. CURTIS’ F I G P E N .

from Barns, Sheds and Outbuildings
South Elevation

Southwest Corner

West Elevation
What should these houses look like? At first glance, they should not be much different from my parent's house. My parents should be able to identify with it as a small box, approximately the same scale, walls with punched openings, and three horizontal zones (foundation, wall, roof) implied. The box should remain on the outside in reference to the larger scale, but the four boxes inside are subtly revealed on the outside in the elevations. The roof on the inside, however, can express the four plot divisions through different heights, and skylights over the two crossroads.

House, Northampton, Massachusetts
House, southeast corner

Mt. Vernon
from William Pierson, American Buildings and Their Architects
East elevation

Southeast corner
House with and without enclosure, showing objects within
Objects on one side of the road or hall provide the definition of the room on the other side. For example, the closets and bathroom, although across the hall, provide the far edge of the kitchen. It is also important to note that the dividing roads only extend to the extent of the plot, and connect the plot to the larger roads. As in the crossroads of Northampton’s subdivision, however, these two dividing roads do not necessarily correspond to their neighbors. This accentuates the fact that each plot, although related to others, can be subdivided independently, creating a more diverse fabric.
The collapsing of space, allowing the viewer to imagine being both "here" at the top of the hill, and "there," at the bottom, is apparent in having similar forms (such as a large rock or a house) marching down the landscape. If the objects are the same size (such as the fence posts), then there is a true understanding of the distance between here and there. But there is also a more interesting relationship across the landscape when a larger form, far away, appears the same size as a similar form close-up. The diminution of size in perspective allows the two similar objects to appear to be the same size to the eye, effectively collapsing the space one is experiencing in the landscape. In other words, it somehow allows a person to imagine being both there on the rock in the water, but also here next to its kindred on the hill.
House with enclosure

House without enclosure, showing objects within
Diagrams of Fractal Behavior

The following series of diagrams are meant to be a visual reminder of the associative, fractal behavior of the location, orientation, and division of the site and its buildings. The diagrams run from the largest scale of the location of Northampton in Massachusetts, to a house on its lot, to a bed in a room. The diagrams are meant to remind the reader of the powerful sense of place and orientation such fractal behavior can produce.
Diagram showing the two major carriage routes from Boston to Albany and from Brattleboro to Hartford. These two routes were the main reason for the founding of Northampton in the 1700s.
"Seeing land in these geometric terms-and living in a landscape laid out in such a way-can condition even how we see our bodies in spaces closer to hand. A former student of mine recalled how her mother, in her farmhouse in Iowa, would answer queries about the location of some utensil in her kitchen with phrases like "It's two drawers north of the sink." And in York, Nebraska, the owners of Heide Auto Shine think it totally sufficient to hang a large sign on the side of their building that states, with no arrow, "entrance east door."" 

from Bill Hubbard Jr., *A Theory for Practice*, p. 175
A diagram showing Northampton and the neighboring towns. The location of Northampton is not only located at the crossing of two major routes, but also at a major geographical intersection. This valley is where the Connecticut River tries to negotiate its way through the Mount Holyoke mountain range.
1875 Map of Northampton, project site located in the upper left hand corner from Forbes Library, Northampton, Massachusetts.
A diagram showing the approximate six mile township of Northampton. The city is condensed around the first tiers along the Connecticut River. The project site is analogous to the city, on a hill next to the smaller Mill River facing east.
A diagram comparing the proposed first divisions of the site plan to the first farm divisions of Northampton which followed the topography.
Fig. 208.—A NEAT DOG KENNEL.

from Barns, Sheds and Outbuildings

Church and grounds, Amorgos, Greece
A diagram locating the house and its lot within the site plan.
Description of a Shaker Community

"Each Environment was a living building...space and behavior were channeled into regular rectangular patterns...these successful built environments placed emphasis on the environment as a visible symbol of the community...It should have definite boundaries and a special character...rules concerning posture and orientation reveals consistent orthogonal ordering, (such as) right angled paths, and signs stating “Bread and meat are to be cut square”...Meticulous fencing, in iron, stone, and wood, defined the boundaries of the Hancock domain and emphasized the pattern of land use."
The house, like the city of Northampton, sits on the hill, and faces east, overlooking the "farmland" below and the river beyond.
Fig. 219.—A NEAT PIGEON HOUSE.

Fig. 220.—INTERIOR OF A LARGE PIGEON HOUSE.
The first two roads divide the lot of the house in the same manner as the two carriage roads divided Northampton. The bed in the bedroom is analogous to the house on its plot. The bed is also on the hill, facing east towards the city and the river.
Shaker house, reflecting divisions of gender
from Seven American Utopias
When lying in bed, a person can clearly imagine where they are.
3c. Subdivision of the Library

My final test in fractal design was the library. I furthered the exploration of the enclosure, now at a larger scale, as well as the question of what role structure would play in the system of subdivision. Finally, I explored issues of section on a hillside, rather than on flat ground. The behavior of the entire site or landscape was brought into the building and intensified, pushing the experiment in fractal design.

The section of the site consists of the upper shelf; the middle zone, or hill; and the fields. In the library, the analogy of this movement is included in the section. The idea is that a person begins at the top of the hill in a house (now a reading room), moves down the hill and picks a book, like picking apples, and then brings the book back to his or her house. The section allows for vistas over the field of books and outward in the direction of Northampton. Most importantly, the landscape is allowed to move under the enclosure and into the building, allowing the user to experience the direction of the topography at all times.
Each of the programmatic functions of the library receive their own house and plot. These houses range in size from the auditorium, which brings the collective size of a house into the library, to an individual study carrel. These library functions, such as the the periodicals, may have back buildings and a section of field, or books.

The auditorium, like the house, also behaves fractally. It has its own two roads, which connect the auditorium to the library, and make four internal divisions. Inside are more objects such as the bathroom and the projection booth. The site is allowed to move up the hill and through the auditorium, with a shelf (projection booth), hill (seating), and field (stage) zone.
Various privacies are created at all sizes, from the carrel, which has a front with an opening, sides, and a tall chair back; to the size of the auditorium, which is the size of the house brought into the library. These privacies are placed off internal streets with their own distinct direction and plot.
Library, diagram of voids on unfolded elevation

Library, unfolded elevation
Once inside the enclosure, or wrapper, the landscape is allowed to be subdivided to a greater extent. As a person enters the library, he or she is moving down a street at the center of an original acre, with divisions perpendicular to his or her movement. He or she may choose to follow the path of movement straight through the building and under the wrapper. The user may also come to the internal intersection and decide to stay, moving perpendicularly along the ridge in the middle zone of the “forest”. In the middle zone, there is little activity, except for perhaps someone who has taken a book and sat on the hill to read.

Notice that the main direction of the plots, and therefore the structure, are always perpendicular, or counter to the movement. This continually brings attention to the plots running laterally, with views associating with the outside.

There are continual associations with larger references to the plots running from the outside and through the building. Two major plots, a chain wide and a “furrow long” run through the building, making a connection on the inside of the structure to an English acre running down the hill.

The wrapper stands clear of the objects and the foundation, expressing its independence as it wraps around the landscape.
Enclosure

The enclosure is the only element which does not correspond to the lines of the subdivision on the ground. It therefore has its own independent structural system which marches along regularly and folds around the landscape to define an object at a larger scale, as was done by analogy in the gym. To emphasize this independence, the enclosure wraps around a foundation, which acts like a plug. This regular system of enclosure becomes most interesting when it remains at the same height, allowing the ground move up underneath it. In other words, the enclosure is the registration line which makes the falling section more understandable.

As in the gym and the house, within this wrapper, the territory may be intensified (or subdivided) even more. The wrapper defines an object and refers to the larger scale. However, within the wrapper smaller subdivision may occur.
As opposed to the house, in which each elevation had a face and a side, the library has many faces and sides. In general, the openings still reflect the houses on the interior, projecting either their face (large opening) or cheek (two small openings). The general direction of the plots on the inside can therefore be detected on the outside.

The fenestrations also reinforce the independence of this wrapper by having patterns which move around corners. Two windows above placed the same width apart as the larger window's dimension below may be shifted, implying rotation around the corner. Mullions may also associate with other mullions around the corner, implying a continuous skin.
Bold openings have distinct views to Northampton and the mountains beyond. With objects within objects, these views may not be experienced all at once, but may rather be discovered as one negotiates around objects.
Library, view into stacks
On the west side of the library, the wrapper is allowed to drop, making a kind of front porch. Due to the fact that the structure behaves like trees, marching up the landscape and maintaining a consistent height, the roof also responds by popping upwards.
From the east approach to the library, as one comes up the hill, the roof is hidden behind the wrapper to maintain the library as an object at the larger scale. Once inside, however, the roof expresses the first four plot divisions through different heights. The four divisions are also evident in the roof through the use of skylights over the two crossroads.
Structure

The structure overhead creates a direction, with the dominant beam always countering the direction of movement. This structure directly reflects the fact that in subdivisions, the direction of the plots are always perpendicular to the road. When the beams accentuate this counter-direction, one can imagine the space opening laterally to one's movement.
A columnar system of structure is analogous to trees, which are the only elements which may fall on the property lines. The structure is intensified, like the forest, with each column branching into four divisions. Not only does this division allow the structure to branch into smaller elements, filtering the light, but it also allows the column to be double-directional. The major beams can therefore change direction and "pass" easily. Of course, it also makes sense to divide a single object into four, in the way buildings have become divided, with roads passing through. The divided column therefore reinforces the fractal behavior of subdivision, bringing it down to the size of the detail and fulfilling its didactic purpose.

The structure also indicates plot lines (like trees) as well as a change in direction as it marks the corners. Although the structure is always orthogonal in plan, it is usually perceived obliquely, creating a constantly changing screen of columns. With the perpendicular views, a person is snapped back into the grid, and their orientation is reinforced.
Views

Dropped light fixtures from the ceiling not only complete the “roof” of the objects below, but they also behave like the tops of trees, blocking a straight view from the top of the hill. Window openings can also reinforce this experience, an experience which occurs in the landscape on the outside. When at the top of the hill, with a forest at eye level, a person’s attention is actually drawn up to the sky or below down the hill.

My thoughts about the procession down the hill, and the views that either close or open, are summarized in the following series of diagrams.
From the top “shelf”, one has many directed views out of the upper openings in the outer enclosure. Due to the fact that the objects on the interior directly project themselves on the exterior wrapper, a visual connection to the outside is perhaps made more clear when entering the object inside the larger wrapper. In other words, one may have to go inside a reading room to fully appreciate the visual connection to the outside, as the windows come in line.
As one moves down the hill, the direct views of Northampton give way to indirect views of the sky and the ground. This limited view is analogous to the tops of trees which can block views in the landscape.
Even as one approaches the outer wrapper, the views may be only directed straight out over Northampton, perhaps framing a steeple, or a smoke stack.
Within just a few feet, however, as one moves beyond the last layer of objects in the library, the view opens wide, not only ahead, but also above with the sky, and even below, as the enclosure stands clear of the foundation.
Fig. 138.—ANOTHER WESTERN CORN HOUSE.

from Barns, Sheds and Outbuildings

Cigarette Ad, R.J. Reynolds, Co.

A Tobacco barn with its enclosure opened for curing
from Tobacco Curing
4. Conclusion
The program of a mental health community served as a vehicle to explore the process of subdivision of Northampton's formation. A greater sense of place is accomplished through the development of a site plan and building system based on the fractal behavior of the city's underlying structure. I pose the question as to whether this community necessarily must be for the mentally ill. With the history of the city informing the overall site plan, and the site plan informing decisions about the smallest details of a house, the principles of subdivision may be applied to any American community.

"It's opener there
In the wide open air"
from Dr. Seuss, *Oh, the Places You'll Go!*
Endnotes


2. Ibid., 36.

3. Ibid., 38.


7. Ibid., 42.

8. Ibid., 42.


All photos and illustrations, unless otherwise noted, are by the author.
Bibliography


Bibliography (continued)


