CHAPTER 1: LANDSCAPE IS DYNAMIC

Duration is the continuous progress of the past which gnaws into the future and which swells as it advances.
Henri Bergson (Bergson, Creative Evolution, 4)

All the elements that make up a landscape are in a perpetual state of transformation. Inorganic materials are exposed to constant weathering and will eventually succumb to the elements. Brick, concrete, mortar and even granite may seem frozen in time, but they too are changing and wearing down. These materials, in differing stages of deterioration, are a keen reminder to us that time has elapsed. Nature in the form of weathering re-forms materials. Weathering erodes the surfaces of materials and simultaneously erases and reveals (Mostafavi and Leatherbarrow, 64). Like a well-worn face, walls develop a patina that reflect the passing of time.

Is not this return of matter to its source, as a coherent body, Already implied in its constitution, insofar as every physical thing carries within its deepest layers a tendency toward its own destruction – death as a birthright?
(Mostafavi and Leatherbarrow, 69)

Organic materials in the landscape do not have to weather to remind us of the passing of time. There is something visibly changing every day. Buds form, flowers open, leaves drop, grass grows and trees mature.

Even a landscape that is purposely maintained will look different after the passage of time, different than the day the design is built. Today one may visit a new park and see young trees, older trees, sunlit flower beds, copper trellising and brick walls. Ten years from now, one may encounter mature and dying trees, shaded flower beds and brick walls covered in vines. Thirty years from now, that same landscape may present young trees, stumps or empty spaces, a trellis with a green patina, and moss-covered brick walls. Time leads to change; any landscape is dynamic.

After George Mason built Gunston Hall in 1759, he designed and planted a formal garden. He laid out a one acre rectangular garden behind his plantation house and planted small boxwoods (Buxus sempervirens ‘Suffruticosa’) to line the gravel paths. Today these boxwood plants, ring dated to the 1760s, have grown and obscured the original layout of the garden. This is an example of time at work, even in a planned landscape, over a long period. The Water Garden, designed by Lawrence Halprin, on the capitol grounds in Olympia, Washington is destined for demolition in the near future, due to the unrelenting effect of water over time. This landscape was built just thirty years ago and has been non-functional and neglected for the last 15 years. Time can work over an even shorter period. A bed of perennial flowers left untended will grow, peak and decline in less than 10 years. If it is not mowed a field or lawn will be covered with weeds after one year and filled with woody scrub in three.

Landscape architects need to acknowledge, accept and incorporate the inherent dynamism of all landscape elements in their designs.
CHAPTER 2: ACCOUNTING FOR TIME

Wherever anything lives, there is, open somewhere, a register in which time is being inscribed.
Henri Bergson (Bergson, Creative Evolution, 16)

The way we design landscape today does not often take into account the dynamic aspect of materials. It often seems as if we design only for a juried presentation or for opening day. Such designs treat time as a discrete interval.

For example, Peter Walker has proposed in 2004, an addition of 150 mature trees to Michael Arad’s World Trade Center Memorial design, “Reflecting Absence”. He plans to combine sycamores, lindens and locust trees that “will yield a gold and brown canopy in autumn and bud on a sliding scale each spring...a mighty, but silent, juxtaposition of life and death, mutability and permanence” (NYTimes 01-22-2004). Walker has clearly thought of time in terms of the seasons, and has slowed the visible passage of time by planting mature trees. It is far from clear, however, whether Walker has designed for more than the passage of a few years or, at most, one or two decades.

In planting mature trees, Walker seems to envision a permanent and timeless state; he is using trees as if they are fixed in time. Mature trees increase the circumference of their trunk, but do not substantially increase their height or width of canopy, so the experience of the memorial design will not change quickly. Nevertheless, the average lifespan of trees in an urban park setting is about 50 years, and trees do not conveniently die all at once. Furthermore, the rates of growth and lifespan of lindens, locusts and sycamores vary. If one takes time into consideration, it is clear that to maintain the initial intent of this memorial, the existing trees will require continual replacement by equally mature trees, as they become damaged by wind and weather, diseased or die.

It is too often the case that landscape architects design for an instant in time and sometimes for a time that may never arrive. The static nature of garden representations leads us to ignore time and to draw plantings in their ideal peak state and in ideal weather. In other words, trees and shrubs are pictured in their mature state even if it is highly unlikely, given the different rates of growth, that these plantings would all reach that peak state at the same time. In addition, different rates of growth will sometimes lead to so much shade that neighboring plantings will not get the chance to grow and thrive at all. Unless the plantings are installed fully grown, drawn designs are often an exercise in wishful thinking. Traditional methods of communicating design do not adequately take into account the dynamic nature of landscape materials. To account for time and the dynamic nature of landscape materials we need to “animate” our designs, in the same way that a cartoon character comes to life through a series of successive drawings.

To design with time requires taking into account the future needs of the client, the dynamic nature of the materials and the everlasting integrity of the design. To design with time requires the landscape architect to think beyond the initial drawing and current needs of the client. To design with time in mind requires an understanding of the maintenance required and all the associated costs of that maintenance. In Walker’s design, such maintenance will likely require replacing a dead tree. This could involve installing a mature tree in the middle of a grove of established trees in lower Manhattan.

The following are additional examples of how time is treated in the landscape. A developer builds a residential complex and desires a design that will look good for two or three years while he sells all the units. He is not interested in investing for a longer time period. Present design culture reinforces a short time frame, such as “high-design” projects that are completed for pre-opening photography.

Another example is that of a young couple who build a home they intend to live in forever and desire a landscape design that will address their needs and change with them as they grow old. This is a case of a design that accounts for time, but a time that runs out and where obsolescence needs to be considered.

This thesis addresses the issue of time, specifically sempiternal time, which was developed in Christianity about the human soul and its fate after resurrection.

Aevum, however, was a kind of infiniteness and duration which had a motion and therefore a past and future, a sempiternity which according to all authorities was endless.
(Kantorowicz, 279)

Sempiternal time has a beginning but no end; it is simultaneously perishable and perpetual, and in this thesis sempiternity refers to the essence of a design that goes on forever (Kantorowicz, 275). The challenge is to produce a design that endlessly evokes the same conditions at any future point in time. The design of an urban cemetery allows for exploring the concept of sempiternal time. The urban cemetery in this thesis is expected to function continuously, thereby resolving a conflict between space and time. By definition, an urban cemetery is constrained by space. Burial space is not endless, but burial needs are.
CHAPTER 3: DURATION

Thanks to philosophy, all things acquire a depth – more than a depth, something like a fourth dimension which permits anterior perceptions to remain bound up with present perceptions and the immediate future to become partly outlined in the present.”
Henri Bergson (Creative Mind 186)

This thesis adapts a definition of duration developed in the financial arena to resolve the conflict between time and space in an urban cemetery. Duration is a complex measure of time. The term is used in different contexts and has taken on a range of meanings. The American Heritage dictionary defines duration as “the continuance or persistence in time” and Webster’s New Collegiate dictionary defines it as “a state of quality or lasting”. Philosophers have used the term in dealing with the concept of memory and the notions of past, present and future.

In the world of fixed income finance, time is obsessively studied and incorporated into every measure of value used by participants in those markets. It is the bond world’s use of duration that I apply in this thesis. Duration was developed as a way to value flows of money over time. Duration in this context is a concept of time that is forward looking and discounts future value. It is this model of time that I apply to the design of a “perpetual” landscape.

To those operating in the world of fixed income finance – bonds, notes, money market instruments, and the like – the time value of money is paramount. Except in deflationary times, money today is worth more than money a year from now and money a year from now is worth more than money ten years from now. A dollar invested at a fixed rate today will be worth more than a dollar one year from today; if given a choice, a person will take a dollar today rather than a dollar a year from now. In other words, the dollar available a year from now has a “present value” that is less than a dollar.

A person managing a portfolio of fixed income securities is concerned with the flows of money at different periods of time. The manager needs to establish a current value or measure of all the money flows of the securities in his portfolio. This measure in the fixed income world is called duration. It is defined as “A weighted average term-to-maturity where the cash flows are in terms of their present value” (Fong and Fabozzi, 28). Duration can be determined for a single item (bond) or a group of items (bond portfolio). Duration measures and weights the future cash flows for one item or a group of items and it is measured in years. Because greater weight is given to current cash flows than to cash flows in the future, the duration of a bond or bond portfolio is always less than the life of the bond. (Fong and Fabozzi, 30)

To apply this concept of duration to landscape design requires that the landscape be conceived as a portfolio of materials. Every material element plays a part in balancing the portfolio. A value and a weighting is assigned to each landscape element. As an example, I graphed the life experience of an American beech tree (Fagus grandifolia) over time. The X axis is Time and the Y axis is a Value from 1 to 10. When the beech tree is young its value is low, but as time progresses its value increases. Once the tree reaches 75 years of age, its value is close to 10 and stays there until the tree is around 200 years old. Once the American beech reaches that age, it becomes too big for its shallow root system and has a tendency to topple over in heavy winds. At this age, the value of the tree drops fairly quickly. In the graph this shows up as a slow rising curve with a flat top and a steep drop. The area under this curve is the experience of the beech tree based on my analysis of the life cycle of the tree.

Fig 3.1
With duration, the analogy between landscape and the human body can now be extended to issues of longevity. In essence, duration ties together two dynamic systems operating at different rates: the human body and landscape.

To derive duration one applies weightings to the different time periods. These weightings would reflect the personal preference of the designer or client. For example, a 25-year-old person may value the 50 years of the newly planted tree to coincide with his life expectancy. So he applies a weighting of 90% to this time period, because this is the time he expects to enjoy the benefits of the tree. He applies the other 10% to the remaining years as a gesture to future generations. If one multiplies the percentages times the experience of the beech tree, one generates a new curve. The area under this new curve is the duration of the beech tree for this particular 25-year-old person. This duration will always be less than the maturity of the tree and is 39 years for this individual.

Fig 3.2 Smooth bark and oval leaves of the American beech

Fig 3.3

Tree Value Years
(area under curve)

Cumulative Total = (220+350+500+500+150+50) = 1,750 Tree Value Years

25 yr-old weighting of experience % 80% 10% 3% 3% 3% 1%

Weighted Value = .8x200=160 yrs .1x350=35 yrs .03x500=15 yrs .03x500=15 yrs .03x150=4.5 yrs .01x50=.5 yrs

To calculate value (Y axis)

Cumulative Total = (160+35+15+15+4.5+.5) = 230 Value Years; 25 year old person receives 230 value years for this tree, compared to tree's total value years of 1750

Duration for 25 year old person = 230/1750 x 300 = 39.43 years D= 39 years

The 25 year old person receives 230/1750 of value of tree. Since maturity of tree is 300 years, the Duration for the 25 year old person is 39 years.
A 75-year old person values the same beech tree differently. This person does not expect to live more than another 10 years and as much as he would like to experience the pleasure of looking at a 200-year-old beech tree, he will place most of his weighting on the 10 year time frame that coincides with his remaining years. The duration of the same tree for the 75-year-old person is 7 years, substantially lower than that of the 25-year-old person.

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**Fig 3.5**

**Tree Value Years**

<table>
<thead>
<tr>
<th>Value Years</th>
<th>Cumulative Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>4x50 = 200 yrs</td>
<td>(220+350+500+150+50) = 1750 Tree Value Years</td>
</tr>
<tr>
<td>7x50 = 350 yrs</td>
<td></td>
</tr>
<tr>
<td>10x50 = 500 yrs</td>
<td></td>
</tr>
<tr>
<td>10x50 = 500 yrs</td>
<td></td>
</tr>
<tr>
<td>3x50 = 150 yrs</td>
<td></td>
</tr>
<tr>
<td>1x50 = 50 yrs</td>
<td></td>
</tr>
</tbody>
</table>

**Weighting of Experience**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Value Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>200/5 x .9 = 36 years</td>
</tr>
<tr>
<td>8%</td>
<td>200/5 x .08 = 3.2 years</td>
</tr>
<tr>
<td>2%</td>
<td>200/5 x .02 = .8 years</td>
</tr>
</tbody>
</table>

**To calculate value (Y axis)**

1. 36/10 = 3.6
2. 3.2/10 = .32
3. .8/10 = .08

**Cumulative Total**

1. (36+3.2+.8) = 40 Value Years; 75 year old person receives 40 value years for this tree, compared to tree’s total value years of 1750

**Duration for 75-year old person**

1. 40/1750 x 300 = 6.85 years
2. 6.85 years

The 75 year old person receives 40/1750 of value of tree.

Since maturity of tree is 300 years, the Duration for the 75 year old person is 7 years.

---

**Fig 3.4** The American beech on the terrace at Dumbarton Oaks is 50 years old
This same reasoning will apply to the trustees of a cemetery, who have expressed a wish to have at least one mature beech tree on the site at all times. They will weigh each of the first four 50 year periods equally in order to have a continuum of beech trees available. The trustees do not apply a weighting to the last 100 years of the tree, because this is the time period, as far as they are concerned, when the beech tree has maintenance costs that far exceed the return in value. The weighting is a reflection of the value that the client places on the tree at a given point in time. The duration for the trustees is 66 years.

\[
\begin{align*}
\text{Cumulative Total} & = (200+350+500+500+150+50) = 1,750 \text{ Tree Value Years} \\
\text{Weighted Value} & = 0.25 \times 200 = 50 \text{ yrs} \\
& = 0.25 \times 350 = 87.5 \text{ yrs} \\
& = 0.25 \times 500 = 125 \text{ yrs} \\
& = 0.25 \times 500 = 125 \text{ yrs} \\
\text{Cumulative Total} & = (50+87.5+125+125) = 387.5 \text{ Value Years; Trustees person receive 387.5 value years for this tree, compared to tree's total value years of 1750} \\
\text{Duration for Trustees} & = \frac{387.5}{1750} \times 300 = 66.43 \text{ years} \\
\end{align*}
\]

The Trustees of the cemetery receive 387.5/1750 of value of tree. Since maturity of tree is 300 years, the Duration for the Trustees is 66 years.

**Fig 3.6** Beech is a shallow-rooted tree

**Fig 3.7**
Duration calculated this way looks forward, so the same analysis can be applied at any point in the life cycle of the tree. To calculate the duration for the same 25-year-old of a 100-year-old tree, the weightings are recalculated and applied to the same life experience curve of the tree, but beginning at the 100-year mark. The person chooses to change the weightings slightly because the remaining life span of the tree is less than that of the newly planted tree. The cumulative total for the 100-year-old beech tree is 1,200 Tree Value Years.

To calculate the duration for the same 25-year-old of a 100-year-old tree, the weightings are recalculated and applied to the same life experience curve of the tree, but beginning at the 100-year mark. The person chooses to change the weightings slightly because the remaining life span of the tree is less than that of the newly planted tree. The cumulative total for the 100-year-old beech tree is 1,200 Tree Value Years.

The duration for this 25-year-old person is 80 years. It is longer than that for the newly planted tree because the same weighting of 80% is applied to a higher value of tree experience. In other words, the 100-year-old tree has a higher value than a newly planted tree.

Fig 3.8

![Image of American beech leaves](image)

Fig 3.9 American beech leaves

Fig 3.10

![Diagram showing duration of tree material](image)
The 75-year-old person applies the same weightings to the older tree and his duration is 17 years, also longer than that of the newly planted tree. This person is getting more value years out of the older tree in the same length of chronological time, so his duration is longer.

**Fig 3.11**

Tree Value Years

- 75 yr-old weighting of experience %
  - 90%
  - 10%

Weighted Value = 75 yr-old tree

To calculate value (Y axis)

Cumulative Total = 90 x 10 = 900 Value Years;

Duration for 75 Year-old person = 100/1200 x 200 = 16.66 years D = 17 years

The 75 year-old person receives 100/1200 of value of tree.
Since 200 years remain to maturity of tree, the Duration for the 75 year-old person is 17 years.

The trustees have a much longer time frame than that of the life of single tree. They have been entrusted to forever perpetuate the elements that make up the essence of the cemetery. Their weightings remain consistent, so for the trustees, the duration of the 100 year old tree is 66 years, lower than that of the newly planted tree.

**Fig 3.12**

Tree Value Years

- Trustees weighting of experience %
  - 25%
  - 25%

Weighted Value = 100 yr-old tree

To calculate value (Y axis)

Cumulative Total = (125+125) = 250 Value Years; Trustees receive 250 value years for this tree, compared to tree's total value years of 1200

Duration for Trustees = 250/1200 x 200 = 41.67 years D = 42 years

The Trustees of the Cemetery receive 250/1200 of value of tree.
Since 200 years remain to maturity of tree, the Duration for the Trustees is 42 years.
Real duration is a number that is really a quality (Time and Free Will, 104). It is helpful to understand the quantity as a means to get at the quality. In the case of the fixed income securities (bonds) there is a market that both values and validates the concept of duration. The number that is duration has been accepted by a bond market, which represents the collective view and experience of the participants. The values that I have applied to the life experience of the beech tree reflect the generally accepted view of the value of that particular type of tree over time.

This thesis incorporates the concept of duration in this quantitative way and applies the concept of “constant duration” used by fixed income portfolio managers to design a perpetual landscape. The design of an urban cemetery with constant duration resolves the conflict between space and time.

*Fig 3.13 Circular Time*
CHAPTER 4: CONSTANT DURATION: A PORTFOLIO OF MATERIALS.

Things must change if they are to remain the same.
Guiseppe di Lampedusa (Ferguson, 140)

A “constant duration” portfolio consists of an initial fixed investment that must be actively managed to take into account the passing of time. It is not important if the duration is long or short as long as it remains constant over time. It is this idea of “constant duration” that I am applying to a landscape design for an urban cemetery.

In finance, a fixed income portfolio will be comprised of multiple short and long duration bonds. The portfolio itself has its own overall duration measured in years. Each day, the bond manager must address the duration of his portfolio. If the manager does nothing and there are no external changes in the financial markets, the bond portfolio automatically shortens, merely because time has passed and it is one day later. Each bond item in the portfolio has a fixed maturity, so the duration of each item decreases with the passing of time. The portfolio manager must take daily action to maintain the same overall duration of the portfolio or accept that it will diminish. The manager must rebalance daily to take into account external variables and offset the passing of time. Duration is about the now (the measure of the instant) and constant duration is about the now forever after (continuity).

Bond portfolio managers with a single a large fixed income investor (bank, insurance company, etc.) derive a portfolio strategy which calls for maintaining a specific duration. If, for example, the portfolio strategy is to have a duration of 10 years, then with every passing day the manager has to rebalance the portfolio to maintain that objective. He is tasked with maintaining a constant state in an ever-changing world, a “constant duration” strategy. He does this by replacing bonds when they mature and by buying and selling bonds before they mature. The goal is to maintain the duration of the entire portfolio of bonds at a constant level. The length of the duration that is to stay constant is established initially by the client’s need to match the duration of his assets and liabilities, so that regardless what happens externally (ex: change in interest rates) the values move together.

Like a portfolio of bonds, a cemetery can be viewed as a time-sequenced portfolio of long duration. To maintain this cemetery and potentially all landscapes with a constant duration requires planning and active management of all the elements that make up the landscape. Over time the forms in the cemetery may shift, but the essence of the design remains constant. A mourner returning to the cemetery many years hence will experience the same landscape despite the material changes and the passing of time. Each of the material elements in the portfolio, vegetation, headstones, memorials and occupied burial spaces have their own duration that are different from each other. All these individual material durations must be balanced with the duration of living memory and ancestral memory to provide a cemetery with constant duration. To function as a burial ground for a city, where the space requirement must stay constant for infinite time (a closed system), the cemetery design needs to have a long and constant duration.

Individual cemeteries were not designed with the intention of perpetuating their function. In other words, cemeteries were not designed for a constant duration, because there was an initial assumption made, that over time, the duration could be rebalanced by continuously purchasing more land. Many of them did expand by purchasing more land, but today some of these cemeteries are embedded in an urban space, and their duration is fast approaching zero.

Before the 1750s most people living in the city of Alexandria, Virginia, were buried in their gardens or farms. In the last third of the 18th century cemeteries were connected with churches, and graves were dug in the churchyards. Then, lack of space and concerns about health issues, specifically yellow fever, led to the establishment of rural cemeteries outside the city. In 1894 Alexandria disallowed more burials in the city. A farm just outside the city limits was divided amongst all the churches and set aside for burials. This site is currently next to the Alexandria National Cemetery, which was established in 1862 for the casualties of the Civil War. The city has now surrounded the site and the cemetery is constrained by lack of expansion space.
Arlington Cemetery in Virginia is an example of a planning horizon that does not match its duration. Arlington Cemetery was established after the Civil War as a final resting place for the nations’ war dead. Open land was plentiful in the middle of the 19th century and planners then had a short time horizon of two to three generations. They did not confront the issue of time and future space constraint. Today, Arlington Cemetery is expanding across roads and buildings to continue to provide a final and permanent resting place for the nation’s war dead. They must expand, because the planners of this cemetery continue to retain a short time horizon. They have chosen to continue the same design format that implies that space is infinite, though the cemetery is now hemmed in by the city. The current design criteria, which has a time element in it, ignores the inevitable future space constraints and has a duration that decreases with every new interment. The trustee/planners have begun to deal with the increasing requirements for space, by purchasing additional space and by the design of a columbarium that will ultimately house 50,000 dead. This will temporarily satisfy the original goal, but will not ultimately resolve the problem.

In contrast, the kitchen garden at Mt. Vernon has a planning horizon that does match its duration. It is an example of a landscape with a fairly short constant duration. The walls and structures that make up the design have a long duration, the espaliered fruit trees have a somewhat shorter duration and the seasonal crops that last less than a season have an extremely short duration. The type of vegetation remains similar year to year, even if over time, the plants may have shifted around in the finite space. The kitchen garden was driven by necessity to become a garden of constant duration. If George Washington returned to Mt. Vernon today he would in all likelihood recognize the essence of his kitchen garden.

The cemetery design will have a similar approach to design as the Mt. Vernon kitchen garden, but with a constant duration that is much longer. Burial options have different durations, such as a duration of one day for a scatter pond, 25 years for interred burial or 70 years for a columbarium. To design for permanence in the dynamic landscape is to design for planned decay. Nevertheless, some things just take time and cannot be hurried. A newly planted beech tree cannot grow substantially faster despite the best of care, and as James Gleick says “grandchildren take time” (Gleick, 102). A weathered headstone in a cemetery has increasing value with age, because it is a material registry and confirmation of the passage of time. Ancestral memory is embedded and dependent on the tendency toward destruction inherent in all materials. Ruins are a physical reminder that there was a time before the present time and outside our remembered past.
This cemetery design will embody all the concepts of time from the point of view of the trustees of the cemetery. The trustees are entrusted with the continual life of the cemetery, which includes, not just the function of burying the dead, but the essence or semipeternal life of the cemetery. While spatial time has a beginning and an end, semipeternal time has a beginning but no end and is the constant duration of the bond portfolio example.

Fig 4.5 Trees are the answer

Fig 4.6 Dividing space over time
CHAPTER 5: THE SITE

What interests us are things things that have a history, things preserved in time not because they are static and closed but because they are open and concurrent, because they have discarded quantities of information on the way.
Tor Norretranders (Norretranders 1991, 207)

The site for the design of the new cemetery in Alexandria, Virginia is located on a portion of Shuter’s Hill, the crest of land a mile west of Old Town Alexandria and the Potomac River. This 10-acre sloping portion of Shuter’s Hill is owned by the Alexandria Washington Masonic Order and lies behind the Masonic Memorial and its parking lot. It is predominantly grass with just a few scattered white pines, oaks and crab apple trees. The elevation varies by a maximum of 38 feet and the parcel is surrounded on three sides by residential neighborhoods. The old Alexandria water reservoir, Duke Street and commercial buildings border the south side of the parcel. Thus, this site fulfills the design criteria (requirement) of a closed system, a space hemmed in by the city with virtually no possibility of expansion.

Fig 5.1 Topo map of site
Fig 5.2 Maps of the site in Alexandria, Virginia
Fig 5.3 Aerial view of site — Masonic Memorial and Alexandria Reservoir visible on lower right
Fig 5.4 Picture taken of site from the observation deck of the Masonic Memorial – Outline of fort still visible in 2002

Fig 5.5 View North

Fig 5.6 View West

Fig 5.7 View South

Fig 5.8 View East
Pottery and stone tools have been found that suggest Shuter’s Hill was used as a seasonal camp by early Native Americans about 5000 years ago. The hill must have provided a good defensive vantage point even then. A prehistoric quartzite hand-axe was found in the 1996 excavation season of The Alexandria Archaeology Museum.

Shuter’s Hill was originally part of a 700 acre patent issued in 1654 to Mistress Margaret Brent by Virginia Royal Governor Richard Bennett. In 1669, Governor Berkeley issued an overlapping patent of 6000 acres to the tobacco merchant, Richard Howson in exchange for transporting 120 people to Virginia. Howson immediately sold this property to John Alexander, a Stafford County planter, for 6000 pounds of tobacco crop. Alexander was unaware that his purchase included Brent’s 700 acres, and in 1674 he had to pay Brent’s heirs 10,500 pounds of tobacco for a clear title to the same land. Some of this property provided the bulk of the 60 acres which made up the early City of Alexandria. Shuter’s Hill may have been named after a local resident in the 1740s.

In 1786 John Mills purchased the property and built a two-story frame mansion atop Shuter’s Hill. In 1786 Shuter’s Hill was sold to Ludwell Lee, an attorney, planter and son of Richard Henry Lee, Virginia’s first senator. Ludwell Lee took out a fire insurance policy on three structures on the property: a mansion, a gardener’s house and a laundry. The blue tarp in the aerial photograph shows where the Alexandria archaeologists are working to expose the 16 by 16 feet stone foundations of the laundry. He also established a family cemetery on Shuter’s Hill, where his sister Anne Lee was buried in 1804. The burials were removed in 1948. In 1799 Ludwell Lee sold the Mansion House to Benjamin Dulaney who used it as a summer residence. In 1842 the mansion caught fire and burned to the ground and a large brick house with a turret was built in the 1850s. The Dulaney family owned the property into the 20th century, though it was seized by the government during the Civil War for construction of Fort Ellsworth. The brick house is thought to have been used either as a hospital or to house troops during the Civil War.

Fig 5.9 Timeline of Shuter’s Hill site
The top of Shuter’s Hill provided a good defensive position of King and Duke Streets, the two main roads from which the Confederates could arrive. In addition, the site had a broad panoramic view of the Potomac River and Washington, D.C. In 1861, one day after Virginia seceded from the Union, Federal soldiers invaded Alexandria, and began work on fortifications on Shuter’s Hill. Fort Ellsworth became one of 68 forts surrounding the city of Washington and consisted of 4 bastions and 29 gun emplacements. All the vegetation surrounding the city was removed to prevent any surprise attacks. Here the soldiers never saw battle, but spent the war training to shoot, which is why sometimes Shuter’s Hill is also spelled Shooter’s Hill. So much gunpowder was spilled on the ground, that the earth became saturated with nitrogen and to this day, in the spring, the grass comes up several shades darker and reveals the outline of the earthworks. Fort Ellsworth is named after the first fatality of the Civil War, which occurred when Colonel Elmer Ellsworth was shot by the proprietor of the Marshall House in Alexandria for removing a Confederate flag flying atop the building (Smith & Miller, 85).
Early in the 20th century, a golf course was laid out on the hill and a clubhouse was built. In 1908 Shuter’s Hill was divided into lots for a residential subdivision to be named George Washington Park, but the lots were never developed. On July 30, 1909 Shuter’s Hill witnessed the first “cross-country” flight in America, when Orville Wright demonstrated a flight for the Federal Government. In front of the president and a large crowd of onlookers, Wright with Lt. Benjamin Foulois left Ft. Myers and flew a total of 10 miles to Shuter’s Hill and back. There was a balloon tethered on the hill and an officer there with a telegraph key to signal that the plane had arrived and turned around. The flight took 14 minutes and 40 seconds and set a world speed record of over 42 miles per hour.

The members of the Alexandria Washington Masonic Lodge purchased the property on Shuter’s Hill in order to erect a monument to George Washington. This monument was never built, and they decided to build a Memorial to house the Masonic relics of George Washington instead. The New York firm of Hemle and Corbett were engaged as the principal architects and the firm of Osgood and Osgood were the consulting architects.

Construction for the George Washington Masonic Memorial began in 1922 and was completed in 1932. The Memorial was built in a form following the reconstructions of the Pharos Lighthouse in Alexandria, Egypt, considered to be one of the Ancient Seven Wonders of the World. Built on the downward slope of Shuter’s Hill at the head of King Street, facing east and the Potomac River, the Memorial rises over 333 feet and towers over the site of the cemetery design.

This is a rough sketch of one of the ancient wonders of the world. It is the lighthouse at Alexandria, Egypt. ‘The Pharos’ was erected to guide the ancient mariners safely to shore. What would be more appropriate than a facsimile of that lighthouse in Alexandria, Virginia on top of the highest hill and overlooking the Potomac River?’ Hemle (W.A. Brown, 9)

**Fig 5.13 Photo taken from site looking upon the back of the Masonic Memorial**
The landscape architect for the Memorial was Carl R. Parker of Olmsted Brothers. Before construction of the Memorial, Shuter’s Hill was 125 feet above sea level, but it was scraped and leveled until it was 108 feet above sea level. A 300 foot core was dug which revealed that the entire site consisted of blue gumbo clay. Furthermore, the hill which currently is situated west of the Potomac River was once the east bank of a prehistoric river, a reminder that space itself is dynamic (W.A. Brown, 10).