

**Title:**                   **Redesign of the Orange Balustrade**

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**Date:**                  **April 2011**

**Abstract:**

The Orange Balustrade has been a favorite garden in the Morris Arboretum for over a century. Today it is a quiet retreat and a meditative space with the peaceful sound of water. What many visitors do not realize is that this seemingly undiscovered space was once a major focal point in the garden, an entrance, and a property edge. The balustrade has seen dramatic changes, many of which have changed the growing conditions within. The soil has become a challenge for growing even the hardiest plants and the fully grown trees provide deep shade. The objective of this project is to refurbish the garden by planting hardy perennials suitable for the conditions of the area, examine and possibly alter circulation patterns, and reconnect the structure with the overall context of the Morris Arboretum.

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## **HISTORY OF THE ORANGE BALUSTRADE**

The Orange Balustrade was created shortly before 1900 and served as an entrance into the rest of the Morris' property. It was bordered by a boxwood hedge that expanded up to the top of the hill, creating a garden room. The garden also once marked the edge of Compton from what is Gates Hall today.

The garden was made in the Italianate style, mimicking elements such as hillside gardening, the rock wall, stream and waterfall, balustrade, and terrace. The stairs marked the beginning of a series of elaborate Victorian garden rooms that stretched down the hillside through the hill and water garden, terminating at a rose garden next to the swan pond. This hill was once a major garden axis and included many of the important plants that are a part of our collection today.

Over the years the conditions of the garden have drastically changed. When the balustrade and water feature were built, the hillside was sunny and the soil was fertile. As the trees in and around the garden grew, the ground became covered in dense shade and the soil compacted from the root growth. Though the area was shaded, the soil was very dry due to the southern exposure, steep slope and fast drainage.

In its early years as an institution, the Morris Arboretum's gardens were left to be taken care of by at the University of Pennsylvania. The early goals of the Arboretum changed from that of extravagant gardens to plant collections and cataloging. Some of the plants were moved around during this time to create collections within species, such as the magnolias, dogwoods, and hollies.

After years of neglect many of the gardens had become overgrown and the structures were in disrepair. Dr. F. Otto Haas became a chair on the Advisory Board of Managers in 1978. His work on behalf of the Arboretum helped bring it out of disrepair and helped expand the educational resources, beginning the dream that John and Lydia had when they first purchased the property in 1887.

After 1978, many changes were made to all of the gardens. The Orange Balustrade was no longer connected to the Compton mansion due to its demolition in 1968. The garden no longer served its original purpose as an entrance from the mansion and it became disconnected from the gardens below when they were removed. The Pennock Flower Walk and Maloney Gardens were installed in 2007, partially restoring the axis. The Orange Balustrade still is somewhat secluded from the rest of the garden, which is possibly why the garden is still successful.

In 2010 the garden renovations began with the reconstruction of the water feature. After years of growing, the once small *Styrax japonica* (Japanese styrax) and *Syringa reticulata* (Japanese tree lilac) had grown so large that the roots had dislodged many of the rocks in the water feature. With a generous donation from the Cilio family the rocks were reset and mortared into their original places. Another renovation that took place was the drainage system at the top of the wall. Preventative measures were taken to divert ground water from the stone wall in order to help its preservation. This, however, made less water available than before, allowing few plants to thrive, let alone survive, in what had become a difficult growing environment.

## **SITE CONDITIONS**

There were three main challenges to replanting the Orange Balustrade: shade, compaction, and lack of water. Dry shade is perhaps one of the toughest environments in which to grow plants. Though there are plants that can grow in dry shade, the older trees in the Orange Balustrade have caused the soil to become severely compacted. The root systems in these large trees have been growing since before 1900 and infiltrate almost all of the planting beds, leaving little space without compaction. Some of the construction work from the fountain restoration also caused the soil to become greatly compacted within the beds.

The garden has traditionally been a dry place due to its steep slope; however, in recent years the problem has increased. Another part of the restoration of the garden was to preserve the newly renovated fountain and the existing stone wall. Water would flow downhill and gather at the balustrade causing long-term harm to the structure. By diverting the runoff at the top of the hill and pointing it around the balustrade, as well as installing drainage in the path above the wall, the water will cause less harm and hopefully lengthen the life of the structure.

With the lack of water even greater than in years before, the plants are struggling. The plants that have been able to establish themselves in the Orange Balustrade thus far are: wild ginger (*Asarum canadense*), liriopse (*Liriope muscari*), male fern (*Dryopteris filix-mas*), dwarf sweetbox (*Sarcococca hookeriana*) and epimedium (*Epimedium grandiflorum*). These perennials can not only grow well in dry shade, but they are aggressive. Even the most aggressive growers have had trouble thriving. For example, the liriopse that was growing in the corner near the summer house was the most established patch in the garden. The plants looked as if they were only planted two or three years ago when in fact they planted around 10 years ago, at the same time the liriopse was planted in the Pennock Flower Walk.

## **DESIGN STRATEGY**

When choosing a design for the Orange Balustrade, it was difficult to ask for opinions from others. The garden, though slightly bare, has remained a favorite or “sacred” spot for many who visit or work at the Arboretum. It was important to listen to opinions from staff, board members, and directors; however it was also important to remember that each person liked the space for a different reason. Keeping this in mind, although many good thoughts and points had been raised, many of them were conflicting. The most important aspect of the Orange Balustrade is the history and the changes that have occurred throughout the years, making the garden what it is today.

The goal was to use the 1909 Atlas of Compton and formulate a circulation and planting bed design that best fit with the historic plans and best accommodate the obstacles for growing. Also just as important as the inside of the garden is the context of the Orange Balustrade within the rest of the Arboretum. By reinforcing the older elements that once linked the pathways and

views to the other pathways and features in the garden, it brings continuity and purpose back to the space.

For example, the original pathway that led into the top of the garden is no longer the main entrance. Visitors to the garden today primarily enter from the bottom, walk to the bridge at the top, turn around, and exit the way they came in. By showing a hint of the path that once connected the bridge to the Morris' home, it tells people that they are not at a dead end, but rather that there is something more. It also piques the visitor's curiosity to explore parts of the Arboretum where they have never before been. Signage at the top of the garden explaining the "lost path" to the mansion is an important teaching tool that would make a great addition to the garden.

That the Orange Balustrade was once the entrance from the mansion was an important connection to restore, but arguably the greatest connection for the garden is the central axis that once led to the Swan Pond. Today the connection is made between the Orange Balustrade, Maloney Flower Garden and Pennock Flower Walk. These two lower gardens are special to the Arboretum because they house so many tropical plants due to their sheltered, south-facing location. The contrast between the two garden areas is dramatic in terms of sun and shade and the Orange Balustrade often gets lost in the shadows. The goal is not to put a walkway between the two, but rather to subtly show the connection. By straightening the bed edges on either side of the grass walkway leading to the base of the balustrade, the visitor's eye is drawn up, connecting the straight pathways of the Maloney Flower Garden and Pennock Flower Walk.

Another important way of connecting the three gardens is by texture and color. In a garden, color and texture play important roles in where your eye rests. The eye will focus and rest on calming views such as meadows, lawns, and ponds. When many different textured plants are planted close together, creating a busy massing, a person's eye will usually pass over it quickly. By planting up to the edges of the turf on both sides of the mown path, it creates a stronger sense of a path or entrance by allowing the viewer's eye to rest on the grass path.

By using the color scheme from the gardens below, the design of the Orange Balustrade plantings will visually reinforce the axis. The connection allows the viewer's eye to look beyond the turf between the gardens and acknowledge the background. The planting beds below the balustrade will be planted with a mixture of plants from the Maloney and Pennock gardens. The taller plantings from the lower gardens will be placed in front of the shorter plantings from the Orange Balustrade. This will create an illusion: when standing below the garden, the plants will fit with the context of the lower gardens, and when standing in the Orange Balustrade looking out, it will look as if there is a mix of plantings, reading as one garden.

## **SITE AMENDMENTS**

With such difficult growing conditions, improvements must be made to increase the chance of survival and hardiness of the new plantings. There are only a few improvements that will be made to the site. An air spade will be used, with help from the arborists, to loosen soil around the roots of the *Styrax japonica* and *Syringa reticulata*. This should help with soil compaction that has been caused by the roots and unwanted pedestrian traffic in the beds. The soil is not only dry and compacted but also contains substantial clay and gravel. The air spade will help break up the soil not only for the health of the trees, but also for the health of the new plantings.

Mulch will be added to the top once the air spading is finished. Only an inch or two will be added, which will supply enough nutrients to the plants without raising the beds too much. The existing beds are already raised a few inches above the pathways and once the air spading is done it will be higher still with the added air to the soil.

## **HARDSCAPE IMPROVEMENTS**

The Orange Balustrade has a strong structural presence. The stone, gravel paths, bridge, summer house, and fountain lay the framework for the garden. Originally the paths were maintained with a single meandering walk that bypassed the summer house. Now the garden is criss-crossed with “desire lines,” or pathways created by visitors on their own. By restoring the pathways and connecting paths, the garden should have a better and clearer path system that will keep people from wandering through the plantings, as well as eliminate pathways with dead ends.

The first improvement is to level off the stone steps that are placed within the garden on the gravel path. These steps are shorter than the usually six or seven inches tall and have a sloped landing making them uncomfortable to walk on. The last step down the hill next to the summer house will be taken out. The step was placed so close to the structure that after stepping off down people must step up onto the structure almost immediately. This is not only awkward for the pedestrian but also causes them to look down to avoid tripping when they should be looking out at the garden.

The second improvement is to create an alternate route around the summer house. In the 1909 atlas the original path was shown bypassing the summer house. By recreating a path there, it will provide privacy for people who may be sitting on the summer house benches or a cut through for people who either want to pass through the garden or get closer to the flowers. This will be done with stepping stones that will match the other stonework throughout the garden. The third proposed improvement is to put in a small, subtle mulched path at the end of the balustrade opposite the summer house. The path would lead to the bench on the side of the hill which is a rarely explored area of the garden and an often missed view.

## **PLANT PALETTE AND DESIGN**

The plant palette centers on the existing plants that were proven to grow in the harsh conditions of the Orange Balustrade. About fifty percent of the area will be covered with those species; wild ginger, liriopse, male fern, dwarf sweetbox, and epimedium. Other plants were added that are not only grow well in dry shade but are also aggressive growers. These will make up the other fifty percent of area coverage. It is important to have plants that are aggressive for this garden because even the toughest existing plants have not thrived after being established for at least ten years.

The plant palette's main colors are similar to that of the Pennock Flower Walk and Maloney Flower Gardens that are based on the colors of the sunset. These colors will not only tie together the three gardens but will be a nice bright addition to the deep shade. Listed below in Table 1 are all of the plants included.

## **MAINTENANCE**

A maintenance schedule will be put into place after planting to ensure proper care of the plants and upkeep of the garden. This schedule will help maintain the intended plantings and the existing plantings in years to come.

A layer of mulch one to two inches thick will be needed once or twice a year for suppressing weeds, controlling soil temperature, adding to the aesthetics, and improving plant health. Leaf mulch or triple-ground mulch is recommended over wood chips. These mulches knit together, which will help the mulch stay in place on the slope and not wash down the hill. Regular weeding should be done by hand. No chemical spraying should be done in the beds due to the close plantings and the possible threat to the health of the older trees. Spraying may be done in the gravel paths to keep weeds down.

## **CONCLUSION**

The Orange Balustrade has changed substantially throughout the years, and these changes are what make the garden special. The new plantings are meant to enhance the garden to what it has become, not to restore it to what it used to be. By fixing circulation, strengthening views and axis', and by adding plants that will add year long interest to the garden, it becomes a more complete space, a teaching area, and a garden to be enjoyed by all throughout the year.

## **REFERENCES**

Pape, Christine. 2010. Always Growing; The Story of the Morris Arboretum.

