The Landscape Architect as Plantsman: Materiality, Representation, and Finding the Lost Gardener

by Stephen J. Daigler
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Design Thesis submitted to the faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Landscape Architecture

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November 15, 2005
Alexandria, Virginia

Keywords: Design Theory, Materiality, Representation, Plantsman
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Landscape Architect as Plantsman: 
Materiality, Representation and Finding the Lost Gardener

Stephen J. Daigler

Abstract

Plants are the unique materials of landscape architecture, and, as any landscape architect will attest, the first question likely to be posed by a new acquaintance will be about a plant. Today’s world offers landscape architects more and more opportunities and demands requiring a broad and thorough understanding of the unique characteristics of plants – to be plantsmen. Yet, the curricula of landscape architecture education programs nationwide are deficient in plant knowledge requirements, and by and large the state registration examinations for professional licensing do not include tests of plant knowledge. This thesis explores the idea that in addition to allowing the landscape architect to respond to those demands, plantsmanship also contributes positively beginning in the earliest stages of the design process when the landscape architect can represent plants in ways that allow him or her to cue into accumulated plant knowledge.
Dedication

This work is dedicated to my parents, Al and Lucy Daigler, who left me free from their own ideas of what I should be, and gave me every extra thing they had when they sent me out to discover what I could be.

And, to Buzz Mauro, my partner in life, who let me spend two years renovating the garden before we painted a single wall.
Acknowledgments

I would first like to thank the members of my thesis committee, who have borne with me admirably over the long road to completing this thesis. Susan Piedmont Palladino’s steady guidance, world perspective and eagerness to broaden her own sphere of thought constantly provided new springboards for moving my investigation to the next level. Patrick Miller provided me with the first kernel of an idea for exploring how landscape architects communicate with each other and the world around them, and set a high standard for scholarship. Dean Bork patiently allowed me to meander until he saw me circling the right question, and then jumped into action to guide me surely toward completion.

My sincere thanks to Ron Kagawa, who was there as I took my first steps toward a new career by enrolling in the George Washington University Landscape Design Certificate Program, and, as I finished that program, guided my steps toward and through Virginia Tech.

My thanks as well to Adele Ashkar, Laurie Field, Joan Honeyman and the other instructors in the George Washington University certificate program. They helped me my hone my design, drawing and drafting skills, giving me the foundation that made the transition back to being a student in mid-life much less stressful.

Jeff Lee of Lee and Associates, Washington, DC, kindly provided base information for the City Museum site.

Finally, my thanks to my employers and co-workers at Jordan Honeyman Landscape Architecture, whose approach to designing with plants helped focus this investigation, and who remind me every day that there are others out there that think like me; we just need to talk louder.
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Introduction

Designing with plants is only part of what we do as landscape architects. But it does seem to be the part that is either most neglected or most scorned. We see our plant side as perhaps too close to gardening, and heaven forbid we should be regarded as decent gardeners. Both practice and academia can be taken to task for minimizing our engagement with plants. What a loss. What are we afraid of? Too much hands-on knowledge of real, tangible, living, baffling stuff?  

Pencil drawing by author at age 14 yrs.

It is easy for me to accept axiomatically that the designed world is better when plants are included in it, and that an intimate and thorough knowledge of the plants being used is essential to their use. My own first steps toward landscape architecture were, if you will, through the garden gate. A love of plants and gardening emerged early in my childhood and was followed by a college education in botany, work in the nursery industry and finally, immediately before setting out to study for a masters degree, a long stint in program development with a major horticultural trade association.

At every stage in my life, both personally and professionally, I focused on plants, and received boundless satisfaction from it as those around me benefited from my avocation to garden design. I spent countless hours poring through any and all gardening and plant reference books. I visited nurseries at every available opportunity to see what new things were on the market and which plants would work in combinations based on their habits, flower and foliage colors, bloom times and preferred habitat. I went back to my college botany textbooks to better understand the taxonomic relationships between garden plants as well as their detailed horticultural requirements. I found myself walking around my neighborhood testing myself on pests, diseases and cultural deficiencies as I examined stunted growth and spotty, curled and chlorotic leaves. Perhaps most importantly, I experimented in my own gardens to see if plants really did perform the way they were described on their care tags and just how much they would tolerate in terms of light and shade, wet and dry, and other growing conditions. When things didn’t work, I ruthlessly culled; when plants showed their true rogue intentions, I ruthlessly culled; when I found situations where the future potentials of two or several plants might be at odds with each other, I selectively culled with an eye to both the present and the future. For me, this was all recreation, but at some point I realized that I had turned myself into someone with an uncommon breadth of plant knowledge and experience that everybody I knew considered the last word - in short, a plantsman. When I set out to study for a degree in landscape architecture and turn my lifelong avocation into my next career, it seemed the most natural extension of what I already knew. When I set out to do a thesis, the idea that landscape architects didn’t automatically assume they needed to be plantsmen didn’t enter my mind.

Were I to modify in any way what Warren Byrd says, it would be to say that “designing with plants is only part of what we are thought to do as landscape architects.” It’s only from outside the profession that the phrase “landscape architecture” seems to immediately bring plants to mind. As any landscape architect will attest, the first question likely to be posed by a new acquaintance will be about a plant, but we cringe upon hearing that a client thinks of us as the source of answers to questions about plant care and maintenance, pruning, pests and diseases. Obviously, this is what the public expects in addition to design expertise, and some may actually consider this more important than design expertise. Plants are the unique materials of landscape architecture - while landscape architects also use the complete set of

materials used by other designers, they leave the plants to us – so it seems natural for people to think this way.

Yet, landscape architects still use words like “vegetation” and “plant material” instead of “plants” and “garden” when we talk about what we use to create the things we create. We often, unfortunately, leave the planting design until last and then are wont to choose from a well used and likely narrow palette. Why? On the surface, many years of experience tell us that when it comes to cutting the budget (“value engineering” in today’s developer vocabulary) the plantings will be the first things scaled back. Sticking with the minimal, common and familiar can increase office productivity by avoiding the need for redesign when the budget is engineered. This is but an easy excuse for a deficiency that has roots as deep as the profession itself, and, indeed, both practice and academia must be taken to task for it.

Since it recognized itself a century ago, the profession of landscape architecture has been on a steady course of distancing itself from the extensive practical knowledge of plants that was the hallmark of the earliest garden designers. Throughout the course of the 20th century, searching for its own theoretical base, landscape architecture has very much followed theoretical developments in architecture. The earliest formal education programs became mired in unexamined historicism. Modernism was embraced by landscape architects tired of being told how to design in the classically based Beaux-Arts style without being told why to design that way. The earliest of what we might call modern landscape architects did indeed use plants in ways that both expressed modernist ideals and that were based on knowledge of the plants. Unfortunately, the modernist rejection of superfluous ornamentation, unexamined itself by those who followed the innovators, later relegated plants to the status of architectural spacemakers and placeholders in the modern style. This pattern of innovation followed by simplistic interpretation was repeated through Post-Modernism and Deconstructionism. The curricula of landscape architecture education programs to this day are deficient in plant knowledge requirements and lack specific courses in planting design that are based in anything but plants used as spacemakers. We see this reflected at the professional level, where the registration examinations for professional licensing do not for the most part include tests of plant knowledge.

Did the quest to establish the professional landscape architect cause a move away from the concept of “gardening,” which was seen as common and a pastime of the less educated working man? The efforts of the profession to create respect for itself on a level equal to that accorded to architects, engineers and urban planners have certainly led to disdain for the importance of residential garden design. This is also reflected in the education received by students of landscape architecture, despite the fact that most landscape architects will find themselves at some time in their careers (and for many, most of their careers) designing residential landscapes. Why is this important? Residential gardens are great laboratories for developing plantsmanship and experimenting with plants and planting design, and at both the student and professional levels, another opportunity to increase plant knowledge is lost.

We now find ourselves in a 21st century where decades of scientific research have shown the benefits of plants to people and society. The opportunities are rife to have singular impacts on the lives of individuals by enriching their environments with plants. On a larger scale, zoning and planning offices at all levels of government are placing increasing emphasis on plant-based mitigation for the disturbances associated with development.

What an opportunity this is for landscape architects, who are already regarded by architects, engineers and urban planners as having the plant knowledge to address these requirements of today’s world, to prove our salt and actually become what they think we are. We need to be the experts that the public expects us to be. If we don’t step up to the plate, somebody else surely will.
In the Beginning

The connection between man and plants is older than civilization itself. Plant forms have long served as the inspiration for designed forms, and plant culture was the basis for many of the earliest ideas in city planning and achievements in engineering. Papyrus was the all-purpose plant in ancient Egypt, and the bundles of papyrus stalks used to support ancient Egyptian homes (temporary homes as considered by their residents) evolved into the carved stone columns of the funerary temples (which they considered their permanent homes).\(^2\) Egyptian architecture was the precursor to the classical orders, and thus the Greek orders trace their roots to the papyrus sheaf. The Corinthian order, with its Acanthus-leaf capital, shows a very direct plant reference: the Greek sculptor Callimachus was said to have adapted the design after seeing an Acanthus plant growing on a Corinthian girl’s grave.\(^3\) On the city-planning front, agriculture in the arid Egyptian climate necessitated irrigation, and the need for efficiency in providing water tended to produce a strict geometric order in the establishment of communities and public facilities.\(^4\) For The Hanging Gardens, Babylonians engineered a structural system in which the roofs were supported by hollow, earth-filled columns to permit sufficient soil volume for tree-root development.\(^5\)

Many plants can trace their use in the landscape to Greek myth and lore. Almost every Greek deity had a plant held as sacred to him or her. Sycamores, known to live to very old ages, were revered, and many myths and legends tell of plane trees becoming evergreen after they were the sites of marriages, kidnappings and murders. With its lush light green leaves, the plane tree became a symbol of shade and the presence of water for the traveler, and accounts of their use in Greek gardens are many. Carnelian Cherry was said to have provided the wood to make the Trojan Horse, and as a wood associated with strength was used for bows, walking sticks, shepherds’ crooks and spears.\(^6\) The Greek God Adonis was said to have been killed during a hunt. To commemorate his death, women planted baskets and pots with quick-sprouting seeds and watered them once. The seeds sprouted and, once the water was depleted, died at the height of their vitality, as did Adonis at the height of his virility. This cycle of life and death paid homage to the life of Adonis and was the beginning of container gardening.\(^7\)

For Christians, paradise is symbolized as a garden, Eden. The earliest botanical gardens in Europe were often at least partially intended as recreations of the Garden of Eden, symbolizing the recovery of knowledge by man and his power over nature, gifts that had been lost since the Fall.\(^8\) Philosophers’, scholars’ and artists’ descriptions and depictions of the Garden of Eden included grand descriptions and depictions of plants and flowers, and gardens were modeled after these descriptions. On the other hand, Zen Buddhism in the sixth and seventh centuries found flowers frivolous and banished them from the garden in favor of the eternal beauty of evergreens.\(^9\)

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\(^5\) Ibid, 33.

\(^6\) Helmutt Baumann, (1993), 37.


\(^8\) George B. Tobey, (1973), 284

\(^9\) Nancy A. Leszczynski, *Planting the Landscape* (New York: John Wiley and Sons, 1999), 12.
The English Romantic landscape gardeners saw mystery and danger in the dark density of evergreens and security and safety in the openness of deciduous trees. Both Chinese and English landscape painters, who arguably set the course of landscape design in their cultures as much as documented it, in their paintings distilled the landscape based on social themes of the day that suggested man could be revitalized through nature. This theme was espoused loudly by Fredrick Law Olmsted, who expressed in his work throughout his entire career his belief that parks were the “lungs of the city” and would allow people to relax and breathe air that had been cleaned by the trees.10

It would be impossible to find a culture or civilization since the dawn of recorded history for which plants did not hold importance in sustenance, medicine, science, art, ritual, myth and, in today’s world, advertising.

When, then, was the beginning of the landscape architect plantsman?

Monks in the middle ages compiled what was known about plants from classical antiquity and used this information as the basis for monastery herb gardens. In most cases, the focus of the descriptions was not on the physical attributes of the plants being discussed, but on their reputed medicinal or magic properties.11 For the monks this knowledge led to widespread planting of monastery herb gardens, herbs being among the few non-essential foodstuffs planted. The world became manic to know all about medicinal herbs. Castelli, in Hortus Messanensis, published in 1640, wrote:

_It should be shown how important and useful is a herb garden as a place for public study...so many plants can be raised and studied there by botanical students in a single year. A public garden is a necessity...the lack of it would be a serious deprivation._12

Now, where the garden of the common man had previously been a utility space, it became more. The garden had been an enclosed domestic domain; it had been a source of food and materials and a place of family solidarity in work. Now it became something much richer: a source of stimulation, knowledge and shared delight.13 And, in the late middle ages we see the first references to professional gardeners. Jean Le Nôtre was one such professional gardener, taking in 1618 the post of royal gardener at the Tuileries in Paris where he instructed his son André in horticulture.

A global garden characteristic begins to appear for the first time in the 18th century as the great planthunters began collecting plants in their natural environments, testing them in their own gardens, and distributing them around the world. Apart from ideas in design, plants were now freely circulated, in due time to multiply, mix with native species and enrich local scenery beyond the powers of natural distribution to do so.14 The introduction of annual flowers into the garden compelled every garden designer, every gardener, to be aware of the growth pattern and characteristic form of every plant, to acquire a sensitive knowledge not only of decorative effects, but of botany.15

John Bartram, throughout the mid 18th century and right up until his death in 1777, traveled extensively through out the wilds of North America and can be credited with introducing many of today’s popular ornamental North American species into

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12 Lucia Tomasi Tongiorgi, “Botanical Gardens of the Sixteenth and Seventeenth Centuries,” in The History of Garden Design, ed. Monique Mosser and George Teyssot (London: Thames and Hudson, Ltd., 1990), 81. The authors were quoting P. Castelli from Hortus Messanensis, 1640.
15 John Brinckerhoff Jackson, (1980), 49.
cultivation. (Ironically, as he introduced the same into the English horticulture trade, they were used to populate many of the notable gardens of the English Romantic period.)

In the late 18th century, Capability Brown, who began as a gardener at Stowe, came to be known as the leading landscape architect of his day. And, Humphry Repton, who followed as the leading English leading landscape architect of the next generation (although he referred to himself as a “landscape gardener”), began his life as a gentleman with a passion for gardening, taking up the work of landscape architect when his fortune ran out. Repton’s influence made itself known in the United States in the first half of the 19th century through the work of Andrew Jackson Downing. Downing was the son of a nurseryman who began managing the family business at the age of 16 and who throughout his career as a landscape architect continued to publish horticultural books and articles.

In these and many others who laid the foundations for the profession we do indeed see the plantsman evolving into landscape architect. This is not to suggest that the only successful landscape architects came to the profession through their love of plants; but, once arrived at the profession, they found the plants. At his untimely death in 1852, Downing was in partnership with architect Calvert Vaux, who later teamed up with Frederick Law Olmsted in creating some of landscape architecture’s most timeless and enduring works, including Central and Prospect Parks in New York City. Before settling into a career as a landscape architect, Olmsted had been a dry-goods salesman, an engineer and surveyor, a farm manager, a published author on the English landscape, a newspaper reporter, a social activist working to abolish slavery, and the editor of a literary and political journal. When he finally did begin working as a landscape architect, his social and political values drove him to create for the common man. He saw the landscape as an equalizing and restorative force, and was much influenced by the English landscape gardens he had walked as a young man. He considered plants and trees to be both physically and psychologically restorative long before scientific research found this to be true. For him, they were a primary means to accomplish his social goals. When he designed the landscape for the World’s Columbian Exposition in 1893, he was pressured unsuccessfully many times to add buildings to the central wooded island. He insisted that the “White City,” like any other city, needed its piece of restorative nature.

When Olmsted became one of the founders of ASLA 6 years later, three of the other nine men involved were the sons of nurserymen who had learned the plant business before becoming landscape architects. But, the one woman among them begins the next part of the story.
How We Lost the Gardener

The big oaks south of the house and between the two gateways are gradually failing, and a policy of replacement must be started which will be unpleasant for the immediate future. The roots of the old trees spread far and wide, and it would be a foolish cruelty to interfere with them by trying to plant new large trees among the old ones. It will therefore be necessary to set out a considerable number of small new trees, understanding that certain of these will be kept as permanent plants and that others, which may not develop well, may be ruthlessly cut out in order to leave the chosen ones for the final effect.16

In the little garden on the north side of the office, it has been though essential to use evergreen material, but not of heavy or massive foliage as the enclosure is so small that large-leaved plants, such as Rhododendrons or Magnolias, would completely dwarf the small space.17

In three decades of serving as landscape architect for Dumbarton Oaks in Washington, DC, Beatrix Farrand was also essentially the head gardener. At the behest of John Thacher, who was appointed as the first head of Dumbarton Oaks when Robert and Mildred Bliss turned it over to Harvard University in 1940, Farrand produced the Plant Book. It included plant lists and statements of intent for all of the gardens, information on care and replacement of the plants used and suggestions for how the gardens should respond to conditions that might occur in the future. It was, and is, essentially a manual for the perpetual care of the gardens at Dumbarton Oaks, and demonstrates Farrand's astoundingly thorough knowledge of the plants she was using. Her vision for the gardens encompassed the past, present and the immediate to distant future. Beatrix Farrand, more than most landscape architects, believed very strongly in the necessity for continuity of supervision and for active intervention by the designer in the development of a garden over an extended period of time.18

She advocated ruthlessness when necessary, as in the case of planning for the replacement of the failing oaks on the south lawn. She paid attention to all aspects of any given plant when assessing its potential use. When she knew that changes in the landscape around a plant would eventually make conditions unsuitable for its continued growth, she often provided suggested future replacements which would still fulfill her vision under the new conditions. She advocated an on-site nursery so as to be sure the right plants were available at the right size to replace things lost to damage or disease. Her intricate planting plans for the perennial plantings took into account the colors and textures of both flowers and foliage, blooming times, the emergence and disappearance of each plant in its own annual cycle, the local patterns of light and shade in the gardens, and how each plant would behave and contribute as part of the plant community in the planting. In some cases, as in the spare plantings of the Beech Terrace, the needs of a single plant (in her day, a purple European Beech, now long replaced by an American Beech) were addressed and its qualities showcased. In all cases, horticultural knowledge was paramount and each plant was regarded as a unique three-dimensional object with internal structure, colors, textures and overall form, both above and below ground. Not least, she took into account all of the times and time cycles inherent in a plant - daily, seasonal and annual cycles, as well as the inexorable march of time. Rolled all together, this is plantsmanship and, while Farrand was, of course, a woman, for me she is the definition of the landscape architect plantsman.

It would be rare indeed to find a landscape architect today, even one with decades of experience, with this breadth of plant knowledge. That’s not to say that there have not been, throughout the 20th century and today, landscape architects who were and are great plantsman. But they are the exception, rather than the rule, which is clearly borne out by the regular letters to the editor in Landscape Architecture magazine decrying the average landscape architect’s poor knowledge of plants. How did this come about? I put this down to four major influences from both within and outside of the profession that conspired throughout the 20th century.

The Style Trap

At the turn of the 20th century, landscape architecture was just a year out from having declared itself a profession with the establishment of the American Society of Landscape Architects (ASLA) in 1899. Within a year, a program of study in landscape architecture was established at Harvard University. Even at its very beginning, the theoretical foundation of landscape architecture was based in architectural theory, and Beaux-Arts architecture had reached its pinnacle with the 1893 World’s Columbian Exposition in Chicago. Frederick Law Olmsted had been the master site and landscape planner. The exposition’s landscape was a combination of classic geometry surrounding the buildings with a central wooded island reminiscent of the English landscape tradition and clearly following Olmsted’s stated objective of bringing the natural environment back into urban parks. The Beaux-Arts tradition was historically based, and at its inception sought to reexamine all of the elements of classicism. Following this lead, academia in landscape architecture took a historicist approach to teaching. Although discussion of either the Beaux-Arts or the English landscape tradition must of necessity discuss the role of plants, they are both far removed from their origins. A hundred years ago, and still today, the picturesque ideal of dark, brooding evergreen-filled woods and Le Nôtre’s complex plant parterres and sweeping tree-defined vistas were not examined for the details of the individual plants used. Rather the plants were seen as a group, accomplishing goals in the landscape. Of course, the same situation applied for all other aspects of landscape design – students were being taught the Beaux-Arts style, and being judged on how well their ideas fit the style, without an examination of theoretical underpinnings. Moreover, the Beaux Arts style came to be defined as the embodiment of beauty and taste, although many criticized it for what seemed superfluous detail and over-ornamentation; exactly what constituted beauty and taste seemed to vary based on the individual opinions of whoever was on the jury at the time. Students were hungry for theoretical underpinnings against which they could objectively evaluate design in landscape architecture.

The seeds of what would come to be Modern architecture had been planted in Europe with the publishing in 1985 of Loos and Wagner’s Modern Architecture. In it, the authors eschewed the classically based Beaux-Arts ornamentation and advocated an architecture based on strict rectilinear geometry and an absolute absence of ornamentation.

In 1937, Walter Gropius brought his modernist ideas when he joined the faculty at Harvard, and provided a springboard for landscape architecture’s movement into the modern era. Harvard landscape architecture students James Rose, Dan Kiley and Garrett Eckbo, frustrated with the subjective historicist education they were receiving, rebelled and began to apply modernist ideas to the landscape.

Rose’s career was primarily in residential design, and he wrote several books and was a frequent contributor to architecture and landscape architecture journals throughout his life. From the beginning of his own career he decry what he felt was the Beaux-Arts attitude about plant knowledge among landscape architects:

> It is quite common and almost a boast among some Landscape Architects that they have “never planted a seed” or “don’t know one plant from another” – an “art for art’s sake” attitude which puts landscape design farther and farther from contemporary life and is therefore the worst possible salesmanship. Can you fancy an architect selling a client on the basis that he knew and cared nothing about brick, wood and concrete? Or that he was too concerned with beauty to bother about them?19

Kiley became known for his seamless connection of the internal spaces of architecture into the external spaces of the surrounding landscape by the use of architectural arrangement of plants. While most of the work later in his career was on a large commercial or municipal scale, his 1957 residential design for the Miller residence in Columbus, Indiana, stands as a paragon of modern design, and demonstrates as well a deep knowledge of the plants he used. The honeylocust allee used a tree of moderate size, that at maturity would still be in scale with the architecture; that could be depended on to succeed even under adverse conditions; that could easily be replaced at relatively large sizes if necessary; that would provide open shade to make a distinct but not oppressively dark passage between the sculptures at its end; and that had a

branching structure sufficiently architectural to make the landscape a part of the house.

This would seem to suggest that modernism brought with it an opportunity for plantsmanship. But, like the Beaux-Arts style before it, it didn’t take long for landscape modernism to go from new movement to style itself. Loos and Wagner’s absolute absence of ornamentation became absolutely unexamined and the Beaux-Arts appellation of plants as ornamentation, in a way, relegated them being absent. The second generation of modernist landscape architects assessed the use of plants in the body of built work as allees, grids and geometry, not as changing, living things whose function as spacers was often at odds with how they would change with time. As they relieved themselves of the examination of the theory behind the style, they also relieved themselves of the necessity to be plantsmen. The second generation of Post-modernist and Deconstructionist landscape architects soon viewed plants as no more than broken down, rotated and displaced grids. Plants became abstractions, dissociated from their individual characteristics.

**Industrialization and the Devaluation of Craftsmanship**

While the industrial revolution occurred well over half a century before the beginning of the recognized profession of landscape architecture, it generated enormous changes no only in the process of production, but also in ideas about manufacturing and business productivity. With the advent of machinery to do the manufacturing tasks that were previously accomplished by hand, craftsmen became technicians, and any single item manufactured became anonymous among many of the same. When Henry Ford installed the first conveyor-belt-based assembly line in his Detroit auto plant in 1913, technicians became responsible for only part of the manufacture of any given automobile. They specialized in their own small tasks at the expense of having an overall understanding of how what they were doing as integral to the finished product. The world would not again recognize until the advent of the “new” idea of Total Quality Management in the 1980’s how important it was to overall productivity for an individual to be charged with the responsibility of seeing a product or process through from its start to its finish. This compartmentalization of responsibility became ubiquitous, and I think we see it today in landscape architecture. The long-term relationship between the landscape and the landscape architect gardener is almost impossible to find. The planning, production and ongoing maintenance of a landscape has become a process accomplished by the serial involvement of many, rather than the lifelong pursuit of an individual, as was the case with Beatrix Farrand at Dumbarton Oaks. In today’s world, once the installation is completed by the landscape contractor, a process in which the landscape architect may or may not have any appreciable involvement, the garden is turned over to a landscape maintenance company. If plants die or fail to thrive, more often than not the landscape architect is unaware and is not consulted about replacements. As a result, not only are designers again relieved of the responsibility for having to know all of the cultural and maintenance requirements of the plants they use, but there is also no opportunity to accumulate knowledge and experience over time by watching plants as they perform in a landscape.

**Horticultural Breeders Respond to the Consumer**

The work of the horticultural breeding and production industry throughout the second half of 20th century has exacerbated this problem in its zeal to bring new plants to the commercial market. Where there is no institutional knowledge about how an introduction performs over time – or a lack of time for evaluation as breeders and producers race to bring novel plants to market - public demand has in many cases caused overuse by design professionals who don’t know have enough information to steer their clients away. There is little argument that introduction of the Bradford Pear as one of the greatest horticultural blunders of this century. Despite all of its desirable characteristics, including copious spring flowering, disease resistance and exceptional fall color, it has proven itself several decades after introduction to be prone to disastrous splitting when mature. To be fair, very few horticultural introductions are evaluated for decades before being released, but the narrow branch crotches characteristic of the cultivar would have been a warning sign of problems to come to any trained horticulturist. But, looking beyond the Bradford Pear, horticulturists and landscape architects have been very much left out of the greater dynamic of new plant introductions.

A booming economy and suburban expansion following World War II allowed more people to have a shot at experiencing what came to be known as “the American Dream”, even though it was based in the English landscape tradition of a dwelling
occupying its own greensward. In America, this was represented by the single-family detached house and its surrounding lawn. But, this ambitious generation, while desiring this dream, also didn’t have time for maintenance and began to demand an easy-care landscape. The breeding industry responded to this and embarked on a prolific course (ongoing today) of developing and promoting directly to the consumer low maintenance, tough, long-blooming and predictable plants. Demand for these plants comes back to the landscape architect through the client. Once again, the landscape architect is relieved of the need to have comprehensive knowledge about the plants that he or she is using. And, an individual who has a problem with a particular plant is less likely to follow through on a complaint or notice a pattern than an educated professional who in another time might have followed that same plant through many projects over many years. Again, we lose the opportunity, through vigilance and accumulated experience, to steer advice and information back toward breeders and producers that could ultimately change the mix of plants available for use.

The March of Technology

Finally, we have fallen into the pitfalls of technology. The technology revolution of the late 20th century has greatly improved the ease of information flow among all design and engineering professionals through the development of CADD (Computer Aided Design and Drafting) software. Aside from information exchange, CADD can be a boon to the design process, allowing the designer to quickly and easily try out many options. The tradeoff for this is a decline in how much we draw by hand. The organic qualities of a hand drawing not only more closely express the material characteristics of plants; they also influence the way a landscape architect thinks about the way plants are used in design. Line variations that flow quickly and easily from the hand, which in themselves can be a springboard for other design ideas, are replaced by consistent drafted lines that seem real and permanent the first time they are drawn. In the move toward efficiency, CADD plant graphics are stored in libraries, and when called up, result in plantings being represented by sets of absolutely identical symbols, often generic, simple representations of plants intended for use in both illustrative and construction documents, also in a nod to productivity. All of this adds up to a drawing that is static, that simplifies the myriad differences between plants, suggests interchangeability and offers none of the opportunities to find new design ideas through the continual reinterpretation of the variation in a hand drawing. It’s worth noting that computer drafted plans are often still hand-rendered for client presentations because we do still realize that the organic qualities of a hand-done landscape drawing are vastly more effective at selling a landscape.
Let me say here that I am a strong proponent of the use of CADD in landscape architecture and by no means advocate a return to the days of only hand drawing. What I have described are not unavoidable traps, but it’s not only the reflective landscape architect that uses technology. In fact, landscape architects in the today’s new generation grew up trusting computers and were most likely taught some CADD application at a very early stage in their education. I would suggest that this makes them less likely to consider the relative value of how it was done “in the old days.”

On the other end of the spectrum, ever more powerful CADD and rendering software allows us to create virtual models in which software can algorithmically grow plants according to specifications provided by the designer. Figures x and y show the results of asking AccuRender® to create a White Oak 60 feet tall with a relatively narrow crown (for the species), branching that begins twelve feet above grade, and to include shadows for a mid-Spring afternoon in Alexandria, Virginia. Once again, this time through hyperrealism rather than simplification, the landscape architect is left no room for interpretation.
and allows them to more easily fall into the trap of missed opportunity.
I finish with a real-life story about how the loss of the gardener proved to be the
downfall of the landscape. In Alexandria, Virginia, King Street Gardens Park is an
almost 20-year old project, which sought to turn a large triangular traffic island into a
community park. Two artists, an architect and a landscape architect collaborated on
the project. The concept for the park was to use native riparian plantings to evoke the
historical presence of Hooft’s Run, formerly a surface stream that ran through the site
but which was then (and is still) running beneath the site in a buried culvert.
Additionally, the design called for erecting a large metal armature (which some say
was intended to resemble a tricorn hat as a nod to Alexandria’s past) on which vines
would form a green screen between the park and the subway station adjacent. The
streambank plantings went in, and the city immediately found itself in the position of
having to water the plantings daily because no constant access to groundwater was
provided. In addition, one of the so-called native species planted was Yellow Flag, a
non-native, although heavily naturalized in the U.S., alien Asian species that is
regarded as highly invasive. Finally, the armature was constructed of widely spaced
slender tubular metal frames criss-crossed by diagonal runs of metal cable and then
planted with Boston Ivy, Virginia Creeper, English Ivy and Akebia. Aside from the
fact that the last two are both non-native and considered very invasive, the first three
all climb by the action of tendrils or aerial roots which require supports with adequate
surface area for strong attachment and coverage. Almost 20 years later, only the
frame itself is truly covered with green and the riparian species have all been replaced
with other native plants adaptable to a less wet conditions. Ignorance of plants has
caused the project to fail to meet its stated design objectives.
Plantsmen for the 21st Century

But we have not yet arrived at the Oriental’s simultaneous mastery of technical and aesthetic values. We can appreciate dogwoods, for instance, not because of their fine blooms alone, but because of the way they are displayed in their native woods, on long arching branches appearing against the gloom of their background like dismembered thrusting arms of an incredible whiteness. Yet we are quite likely to dig up the tree and transport it to a position on the lawn in full sunshine, where it quickly makes new growth and becomes a massive affair quite unlike its natural form. It is still a dogwood, and that is enough for some of us, but the aesthetic quality gained in its woodland habitat is gone. To understand the character of plants and to use those which can supply a formal quality of their own, without insisting on size of bloom or certain fashionable shades of color, is the aim of the modern garden maker.20

Living in Japan during the summer of 2001, I, like many who visit the country, reveled in the masterful displays of landscape prowess that are famous the world over. In some cases, the landscape was achieved via a very formal, additive process, perhaps to showcase terrain or provide contrast to a building; in others, by a subtractive process that perhaps left only a single tree to accent a view. While I can’t deny being in awe of palace and temple gardens thousands of years in the making, I also found myself drawn to gardens in “found” spaces. In the Sakuragicho (“cherry tree district”) section of Tokyo, acres of wildflowers filled vacant lots along railroad tracks. And, in almost any small available area around their homes, people found ways to make a garden, in some cases a garden in a single pot, a distillation. Of course, we are all familiar with the art of Bonsai, a most rigorous and formal process of distilling the qualities of a full-sized plant into miniature. This same approach could be seen over and over all along the roadsides as I walked residential streets in Yokohama - plants chosen for their appropriateness to the place they were planted; plants combined in ways to enhance the appreciation of each; plants chosen and maintained for their natural forms and growth habits. Indeed, everywhere I went in Japan were to be found what I can only describe as full-sized Bonsai, where forms and growth habits had been emphasized through judicious and careful pruning. I left Japan feeling that the essence of the Japanese garden, be it the gardens of the Imperial Palace or a few square feet of space tucked up against a house wall, was less a recognizable style than a philosophy that placed the highest value on plantsmanship.

Among many others before and since, Christopher Tunnard in 1942 lamented the lack of plantsmanship among what he called the modern garden makers of his day. Over fifty years later, the lack is still there, but a host of other landscape goals has joined aesthetic concerns, and landscape architects are increasingly presented with opportunities, and in many cases non-negotiable demands, for design solutions based on the effective use of plants. We need a new kind of plantsman in the 21st century.

We have increasing evidence of the tangible benefits that plants provide at all levels of society and its infrastructure. The late Charlie Lewis of the Morton Arboretum in Chicago spent four decades before his death in 2004 conducting and reviewing research on people-plant interaction and promoting its benefits through his professional endeavors and through the work of The People-Plant Council, The American Horticultural Therapy Association and countless other volunteer activities. His pioneering 1996 book, *Green Nature/Human Nature: The Meaning of Plants in Our Lives*, chronicles research by some of today's most respected biological, psychological and social science researchers covering the entire range of benefits to physical and emotional health and social well-being which are influenced by plants in the environment. Stephen and Rachel Kaplan have done an enormous amount of research on how plants in the environment affect people, and their research along with John Wendt suggests that humans have an instinctive positive response to plants in the landscape.\(^{21}\) Other research shows that plants in hospitals and landscape views through hospital windows promote healing. The opportunities are rife to have singular impacts on the lives of individuals by enriching their environments with plants.

On a larger scale, an ecologically and environmentally savvy public, those who grew up during the height of the ecological movement, are filling more seats at all levels of government and are exercising the will of that savvy public. More and more often the living landscape is being called upon to mitigate in real ways the effects of the architectural and engineering changes we make to the earth. For those who issue the approvals and building permits, this mitigation is often expressly defined in terms of plants.

The Chesapeake Bay Critical Area Commission is a cooperative watershed protection and revitalization organization funded and subscribed to by the states of Virginia, Maryland and Pennsylvania. Guidelines written by the commission require that any disturbance within a thousand feet of any shoreline that is part of the Chesapeake Bay Watershed be mitigated by the planting of trees and shrubs native to the region. The higher the percentage of the land parcel disturbed, the higher the ratio of required replacement plantings to area of disturbance with the additional requirement of replacements at 3 to 1 for disturbance within one hundred feet of the shoreline.\(^{22}\) For the landscape architect, this includes the additional challenge of satisfying a public that often perceives native plants as less aesthetically pleasing than what are traditionally considered ornamental plants.

The Maryland National Capitol Park and Planning Commission (MNCPPC) is a joint effort between Montgomery and Prince George’s Counties in Maryland, just outside Washington, DC, to operate parks and provide land use planning. Again, the MNCPPC requires Reforestation Plan documenting a developer’s plan to restore canopy cover according to a formula based on the size of the site, proposed use and canopy cover being removed. Once this amount is calculated, a list of native trees

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which have been assigned canopy cover values must be used to populate the developed landscape with enough canopy cover to satisfy the Reforestation Plan.\textsuperscript{23}

These are just two examples of these types of regulations which are now ubiquitous.

In recent years, much emphasis in the profession has been on sustainability, and since 1998, the U.S. Green Building Council has been working to create and refine a sustainability rating system for large-scale and commercial construction (and more recently for homebuilding), the LEED\textsuperscript{TM} (Leadership in Energy and Environmental Design) Green Building Rating System. Developers earn LEED\textsuperscript{TM} credits, for example, for the use of rapidly renewable and recycled building materials, minimizing land disturbance, using alternative sources of energy, and implementing environmentally friendly building procedures or technologies. More and more, cities are either requiring that new commercial construction have a threshold LEED\textsuperscript{TM} score or are making development concessions for LEED\textsuperscript{TM} credits, and some possible credit sources are directly related to the use of plants in ways that require specialized plant knowledge. These may include: heat island amelioration credits through the use of green- and garden roofs; water efficiency credits for using native plants in the landscape; wastewater reduction credits for filtering water through constructed wetlands.

I’ve mentioned once need for the landscape architect to be aware of which plants are invasive species, and here we have to take responsibility for being part of the problem as well as having the opportunity to be in the vanguard of the solution. As an example, the following plants can be found on the USDA’s current master list of invasive species: Yarrow, Goutweed, Tarragon, Swamp Milkweed, Japanese Barberry, Butterfly Bush, Spider Flower, Pampas Grass, Scotch Broom, Sweet Autumn Clematis, Evergreen Olive, Burning Bush, English Ivy, Yellow Flag, Redcedar, Black-Eyed Susan, Periwinkle, and Wisteria.\textsuperscript{24} Either the Federal government considers them invasive or they appear on one or more of 35 state or a dozen or so regional noxious weed lists. They appear on my list because I dare say I could accumulate all of these by visiting the six nurseries within a fifteen minute drive of my home and also dare say that we could find them on the plant list of any contemporary landscape architect’s plan. I once had a discussion with another landscape architecture student about the use of invasive ornamental species in the designed landscape. We talked specifically about Purple Loosestrife, a European native brought over by the earliest settlers as a nectar source for honeybees, now on the noxious weed lists of 21 states. His response was that some cultivars were less invasive; that design could provide built-in barriers to spreading; and that maintenance could include monitoring and controlling spread of the plant. Sounds good in theory; in practice, however, levels of invasiveness are hard to gauge (‘Morden’s Pink,’ the supposedly less-invasive cultivar he mentioned has since been found to be nearly as invasive as the species) and diligent control falls by the wayside quickly. Landscape architects must take steps to reduce the use of invasives and educate their colleagues, clients and the public about why this is necessary. To do that, we need this knowledge ourselves.

In some cases invasives are alien species, but in others they are native to one part of this country and become pests in others to which they have been transported as part of the ornamentals trade. This points out a particular part of the plantsman’s arsenal that is critical in today’s world – the need to know regional flora and plant community associations. Not only is this critical to helping manage invasive species but also pertinent to the discussions of municipal requirements for mitigation plantings and efforts toward sustainability. When we say “native,” we need to be able to answer the question “native to where?”

The landscape architect of today does face different challenges for the effective use of plants than did the landscape architects of even a generation ago, the most basic truth of the matter hasn’t changed. In order to use plants most effectively, we need to find a way to bring what we know about plants into the earliest stages of the design process. How?

\textsuperscript{23} Maryland-National Capitol Park & Planning Commission, Trees Approved Technical Manual

\textsuperscript{24} USDA, NRCS. The PLANTS Database (http://plants.usda.gov, 22 May 2006), (Baton Rouge, Louisiana: National Plant Data Center), 2006: <http://plants.nrcs.usda.gov/cgi_bin/invasive_all.cgi?startChar=all>
The Materiality of Plants

“Plant materials is a distancing, neutralizing term that prevents us from thinking specifically. It’s yarrow on models or tree stamps on drawings.”

I can’t keep count of how many times I have attended a design review where the presenter, when asked to talk about ideas for the materials being used, responded with something to the effect of “well, that would be part of the next level of design. Right now I’m just concentrating on the concept.” Invariably, in my mind I have responded with something to the effect of “well, what if you get down to the details and discover that you can’t find a material to make your plan work as you envision it, that the materials available require you to change your design?” Having a deep and comprehensive knowledge of the materials available allows the designer to mentally consider during the design process many and varied possibilities based on the unique qualities of the materials, possibilities that might not suggest themselves otherwise.

It’s ironic that the phrase “plant materials” should so blur the materiality of plants. Later I will focus primarily on the things we can see and represent about plants, their physical materiality, and how these are the portals to bringing accumulated plant knowledge into the design process. But, we need to be able to associate other characteristics with the physical ones to have complete materiality information at our disposal as we draw. And, although drawing and representation are the focus of this thesis, I can’t deny that is one part of plantsmanship where a good digital camera can aid immeasurably.

For me, knowing plants in all of their many material characteristics is the heart of plantsmanship. What do I mean by the materiality of plants, and how do we learn it?


Physical Materiality

While it almost seems too obvious to say, the physical characteristics of plants are many and varied. But the term “plant materials” gives no hint of that. “Street tree,” “shrub mass,” “perennial bed” and “groundcover planting” give us a little more information. “Spreading evergreen shrubs” gives us a little more. Prostrate, fine-textured broadleaf evergreen” might lead us to Willowleaf Cotoneaster or to Bearberry or to Wintergreen. Trees may be arching., vase-shaped, conical, spreading, rounded, oval or weeping. Shrubs may be mounded, upright, prostrate or layered. We need to look at flower and foliage color, leaf size and shape, fruit color, bark color and textures, and become aware of which plants are similar and different on which counts. The purpose of this is to both lead us to particular plants and to allow us to design in nebulous fashion where we have some ideas of what a plant could be but the flexibility to not decide right away what it is.

Horticultural Materiality

Horticultural education for the landscape architect is too often a litany of plants and their characteristics, grounded in rote memorization with the plants dissociated from the landscape and each other. I have been told at times that my approach to plants in design is very “horticultural” — I use proper botanic names and am quick to throw out a few specific ideas at the very beginning of what certain plants might be. I understand the criticism, but I don’t consider my horticultural bent as being at odds with things that we think of as important in the earliest stages of design, such as the
structural and spacemaking qualities of the plants, and what the plants will contribute functionally to the design. Having an idea of what a plant might be is not the same as specifying the plant on a plant list. Knowing the differences between two trees that would be similar in terms of spacemaking over their lifespans may stimulate different ideas for how we design other parts of the landscape that interact with those trees, ideas that may not have come to us had we been only thinking as specifically as “tree”.

Many of today’s challenges to the landscape architect require detailed horticultural knowledge from the start. Gardens on structure require plants that can live in limited soil volumes, that tolerate heat and drying winds and that have root systems that won’t damage waterproofing. They also often need to tolerate low moisture, similar to plants used in what has come to called Xeriscaping as a response to drought and fresh water concerns worldwide.

Landscape architects working for developers in urban areas are called on to design the streetscape, often requiring this to be developed in great detail before the first permit or approval is granted on the entire project. While street trees have been around since there were streets, many municipalities are now requiring that street trees be planted in accordance with an increasing body of research on soil mixes and below-pavement soil panels that add to the trees’ longevity.

The measures taken to ensure the continued survival of the Survivor Tree at the memorial to the 1995 bombing of the Alfred P. Murrah Building in Oklahoma City are a heroic extreme example of the engineering based on the needs of the single tree which became a symbol of renewal. In order to see to the needs of the tree during both construction of the memorial and for the future, digging in its area was done by hand to minimize damage and underground drip-watering and root tunnels were installed. In this case the landscape architect and engineers had to absolutely start with the plant and use plantsmanship to see to the success of the overall design.

Human health issues are relevant here. Therapeutic gardens often call for plants that can be interactive - scented flowers and foliage, and plants that serve as food sources for birds and butterflies. We may also be called upon the know which cultivars of trees are sterile or female in cases of dioecious species; according to the National Institutes of Health, asthma rates have increased 75% between 1980 and 199526, with pollen being a major stimulus for asthma attacks.

Temporal Materiality

In architecture, we always ask the brick, “What do you want to be?”. In landscape architecture, the question is often “What do you want to be when you grow up?”

— Susan Piedmont-Palladino

Perhaps the overarching material quality of plants is time. Unlike the materials used in architecture, plants change over time, and as a result also change their environment. I would not suspect that even the most unplanned manlike among us is unaware of this, but it’s more complicated than needing to have an idea of mature size so we can calculate how many we need in the planting plan.

Plants operate on several time scales. Some plants go through daily cycles of change. Morning glories and Moonflowers spell each other – morning glories open in the morning and close in the afternoon, while Moonflowers open at dusk and perfume

the night air, closing in the morning. Four-O-Clocks open in the afternoon and close by morning. Daylilies have flowers that last one day only, and so don’t make good flowers for the cutting garden.

On the next scale up, we are dealing with seasonal changes in plants. Fall foliage color changes are familiar to everyone, but foliage may also have interesting color when it is first emerging in the spring. It may change color over the course of a season before dropping in the fall and, in the case of evergreens, may take on attractive (or unattractive, just as important) winter coloration before returning to its normal color in the spring. Perennial plants have seasonal bloom times and can be used in combinations that provide flowers and color in the garden year round. Individual plants may have multiple seasons of interest, providing foliage color and flowers at different times. Many plants which flower in early spring have foliage that becomes yellowed and tattered before dying back to the ground in summer. These can be combined with later emerging plants that will hide the dying foliage. Hardy Cyclamen sends up individual flowers on short inflorescences in October and November; it then sends up beautiful mottled leaves that persist through the winter. Late flowering Asters can provide striking color contrasts to plants whose foliage colors early in the fall.

The final scale of time is the non-cyclical march of time. This is where mature size and computing for the planting plan do figure in. We need to be aware of growth rates of trees and shrubs, and how quickly groundcovers and perennials will spread to fill in the surface.

We need to take into account what we know about the life spans of plants. Cherry trees are generally considered among the shorter-lived ornamental trees, expected to live anywhere from 10 to 50 years in the landscape, in large part owing to their susceptibility to a multitude of pests and diseases. In 1912, the Japanese government made a gift of the Yoshino Cherries planted around the Tidal Basin in Washington, DC, and almost a hundred years later, The National Park Service continues to replace and replant specimens, a landscape commitment perhaps unparalleled in this country.

We also need to be concerned with trees that will change their own environments and thus change the growing conditions for other plants in the landscape. Some trees emit chemicals in the root zone that inhibit other plants from growing; some trees have shallow, closely-knit fibrous root systems that will subject anything planted beneath them to drought. Some trees will have a canopy open enough to permit sun-loving plants to grow beneath them while others will require either plants that can tolerate a range of sun conditions or a long term plan to update the landscape with shade-tolerant plants.

We need to understand a plant on all three of its time scales to effectively use it.

Functional Materiality

What I call functional materiality is really a synthesis – knowing what we know about the physical characteristics, horticultural and cultural requirements, and time cycles of a plant, what can we then do with it in the landscape?

Plants can function in ways that provide physical comfort. They provide visual, sound, dust and wind control. They provide climate control by shading in summer and allowing sunshine in during the winter. They can be physical barriers to vehicular or pedestrian traffic.

They can aid in psychological comfort, providing separation for pedestrians from traffic or bringing large spaces down to human scale.

They can have environmental functions. As has been already mentioned, they can filter water or aid in groundwater percolation in constructed wetlands and rain gardens.

Plants can make garden floors, ceilings, walls, windows and hallways. They can unify architecture and organize a site.

**Experience**

Without hesitation, I would say that hands-on experience is perhaps the crux of plantmanship, and that it is impossible to be a plantsman without it.

A home garden is an invaluable tool for the landscape architect. Plants can be tested for performance over both the long- and short-term in all combinations of sun, moisture, soil conditions and other environmental variables. Experiment with environment and plant combinations is possible, and failures will be as valuable as successes. This also gives the landscape architect the opportunity to observe plants close-up and better communicate plants through drawing. But, experience should not be limited to the home garden.

Visits to botanical gardens, public gardens and other private gardens of all scales wherever possible allow the landscape architect to see plants in many and varied environment. Visits to nurseries and garden centers allow us to see new cultivars and compare them directly to older and other newer varieties. A notebook for sketching and observations is a must. Note plants and plant combinations that are seen in nature, in the designed landscape, or that happened by accident.
**Communicating the Plant**

Similarly, you must carefully draw trunk, branches and leaves as you see them, or, if you have gained experience, you may use some touch, a kind of shorthand, to express the foliage; but this should have sufficient character to indicate the species of the tree – elm beech, oak, etc., and the springing effect of growth.29

The truth is that representation is not a contingent matter, something merely secondary; it is integral to the perception of the landscape itself – indeed, part of its being and essential to its manifestation.30

I am convinced that Bradford Pear was bred in direct response to the tendency of landscape architects to draw the same perfect, linden-like gumdrops in every section, elevation and perspective “rendered” from the 1960’s until today.31

As with any design profession, landscape architecture rests as much on the ability of the designer to communicate his or her vision as it does on having the vision itself. As both students and professionals, we continuously learn, cultivate and innovate as we hone the craft of drawing, our way of communicating with each other, our clients and the contractors who turn vision into reality. We devise and subscribe to drawing conventions and symbolism of several kinds, and these become automatically associated with both concepts and physical objects or features. At some points in the process we may require drawings that show intent unambiguously while at others we desire drawings that inspire the imagination and elicit gut reactions to the arrangement of spaces or massing or geometry. Analysis drawings may include different types of arrows and lines to denote sun, wind and noise conditions; brightly colored shapes may represent different functional areas of a site; dashed contour lines represent topographical variation. Schematic design and presentation drawings may

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required me to make a very careful drawing of the leek. I noted the herringbone pattern of the leaves as they emerged and the overall symmetry of the leek as an object. While I have not since used leeks in a planting plan and think the chances are slim, this exercise stands out in my experience for the realization that drawing a plant could be the beginning of a design journey.

But, we’re always drawing plants, and some might say “how is this different than what we’ve already been doing?” What’s different is that we’ve armed ourselves with so much specific material information about plants, as often as possible associated with acts of drawing, that the act of drawing itself becomes a pipeline for that knowledge. The emerging line of what we intend to be a plant as the pen or pencil slides along the paper is filled with the possibilities of all we know, is any one thing and everything all at the same. As the line changes – becoming fatter or thinner, stopping and restarting, becoming multiple lines or shapes or squiggles or dots – accumulated drawing experience is constantly making a connection between what we see on the paper and what we know about plants, influencing the next movement of the pencil. Compare this with the act of inserting a plant graphic block in CADD. We are used to CADD symbols which bear no recognizable resemblance to a plant we can put a name to. If we want to show more realistic plants in CADD drawings, we often have to develop them ourselves. Even then, the result of this time-intensive process needs to be something that can be used repeatedly. It must be devoid of a specific plant identity and, no matter how detailed it is, it will be exactly the same each time.
there are vertical, horizontal or scaly patterns. Note bark color and whether branches
are horizontally layered or upright and their angles to the trunk.

Draw the various shapes of shrubs so that when you are designing you draw a 6’,
arching vase-shaped, open shrub for screening. At any point in the design process
you know that you can choose from half a dozen different hybrid Viburnums, or some
of the large Indica-type azaleas or some of the larger, more open fall-blooming
camellias, depending on whether the plants need to tolerate wet soils, if you have
organic soils in shade, or if
you have a south side
protected from the sun or a
north side protected from the
wind, respectively. Abelia
might be your choice if you
have dry sun in hard-packed
soils or need the plant to be
able to recover quickly from
mechanical damage when the
housepainters come along
every five years.

I often then find it helpful to
go through exercises of
diagrammatic abstraction.
Realistic drawings serve as
templates for analysis
drawings that represent plants
for their salient
characteristics. What is the
overall outline and shape?
How do foliage masses relate
to each other? Is the plant dense and
opaque or light and airy?
Cryptomeria, Serbian Spruce and Bald Cypress at successive levels of realism and abstraction.

Zelkova progression.

Yucca, realistic and simplified design drawings.

Cherry abstraction

Cryptomeria, Serbian Spruce and Bald Cypress at successive levels of realism and abstraction.
I’m not sure everybody would see the value of these types of drawings. They can appear labored and self-conscious, and, in fact, they are. But it’s important to remember their purpose. They are intended to strengthen the knowledge-representation connection for the design process, not to exist out of context of what comes before and after them. They are a tool for me, the designer, not an end in themselves.

My final exercise is to work back to somewhere between realism and diagramming. During the design process I can then quickly represent plants in simple ways that still express the essential qualities of the plant and, because they are the end of a process, provide me with the same access to my plant knowledge when I draw them.
The Washington City Museum Site

I chose as a project site Mt. Vernon Square, at the intersection of Massachusetts and New York Avenues, and 8th and K Streets in Northwest Washington, DC.

With an area of just under 3 acres, the square was designated in L’Enfant’s 1791 plan as one of 15 reservations that were, on the authority of the Federal government, to be divided among the states of the union to be improved. Originally one square, it was soon cut by 8th street and became two. 8th street was closed off again in 1882.

Throughout the 19th century, the site served as the location of a public market, a firehouse and a notorious uprising over voter rights that left 6 people dead at the hands of the U.S. Marines.

Between 1872 and 1874, as part of an overall program of public improvements, the market was razed and a system of paved carriage routes providing passage through the park along all four streets was installed. A traffic circle wrapped a central fountain. Sidewalks, street lamps, lush plantings, drinking fountains and a post-and-chain fence separating pedestrian areas from the carriage routes graced the square, now known as Mount Vernon Park. In 1882, 8th Street was closed off and the carriage routes, having been deemed too dangerous, were removed and replaced with footpaths.

In 1899, after a heated Senate battle, the site was selected as the location for a new library donated to the city by Andrew Carnegie as part of his nationwide program to provide cities with libraries. It took three years to build, and opened in 1903. The building served as the city’s main library for almost 70 years, during which time a new system of footpaths was installed in an arrangement with exists to this day. In 1972, the city built a new public library dedicated to Martin Luther King Jr., and the building was closed. The building sat empty until in 1980 it became part of the University of the District of Columbia.

In 1999, the Historical Society of Washington, D.C., began an ambitious fund-raising campaign to turn the building into a museum dedicated to the history of the District of Columbia, and the Washington City Museum opened in 2003. During the building renovations, the landscape underwent a major renovation as well, including the removal of all ground plane plantings around the building. These were replaced with perennial and groundcover beds. Thirty-one existing trees (including six planted in sidewalk tree pits to the south, were augmented with twelve new trees. The majority of the site is lawn. Unfortunately, much lower than predicted attendance left the museum struggling, and it closed in December of 2004. The Historical Society of Washington, D.C. continues to house and run its library there, and the building will soon become the home of a new National Music Center.

The site is across Mt. Vernon Place from the Washington, DC, convention center to the north and the Techworld Plaza, a twelve story office and business complex to the south. The grounds continue to provide a large swath of green in an area of the city densely filled with commercial and office space to the south and west, with more residential areas to the north and east.32

32 All historical information about the City Museum site taken from Hoaglan, Alison K. “The City Beautiful Comes to Mt. Vernon Square,” Washington History 2, no. 2 (Fall/Winter 1990-91): 74-89.
North elevation of the site, with Techworld Plaza in the background.

South elevations of the site, with The Washington Convention Center in the background.

West elevations of the site.

East elevations of the site.
Existing Liriope and Daylilies in beds surrounding perimeter of building.

Existing conditions plan. 43 existing trees have been drawn in to show their actual sizes, canopy density and condition.
**A Plant-Centric Design Process**

Hannah: You need an idea of the world to go out into the world. But it's the going into that makes the idea. You can't wait for a theory, but you have to have a theory.35

This is the great dilemma of design – we’re always putting the cart before the horse. We start with an idea that there’s a solution to our design goal, and focus not only the design but the goal itself during the design process.

The “plant-centric design process” is no different than designing with other materials, except that the designer comes into the process with a wealth of knowledge, connected to the act of drawing, about how to use plants as part of the overall process. It begins, of course, long before the first stroke of pencil to paper in a design project. It requires the commitment of the landscape architect to become a plantsman through scientific study, personal observation and hand-on gardening experience; and is based in the concept that this knowledge, manifested early in the design process through its association with practiced ways of representing plants, can provide expanded avenues of exploration and focus.

It’s crucial at this point to be clear that the intended audience here is the landscape architect—the individual landscape architect who is in the process of designing with plants. Everybody has in individual drawing style, and what you see here shows mine. I made a specific decision at the beginning to draw by hand in pencil; for me the soft, shadowy quality of pencil lines seem to provide the most opportunity for interpretation. Others may prefer other media. The point is not to draw as I draw, but to use the drawing of plants during the design process as a tool that enhances the process.

I would also like to be clear that what I have shown here are not intended to be presentation drawings. I admit that for the purposes of this thesis the drawings have been cleaned up and, as drawings, are shown in a somewhat presentational style. The way the plants are represented in the drawings are ways that I found helpful as I worked on the design. That’s not to say that there must be a total disconnect between process and presentation drawings, as eventually one evolves into the other. The extent to which the representations of plants evolve is another choice the landscape architect makes based on what he hopes to evoke from the client.

I chose the city museum site for several reasons. The location of the site, between the Washington Convention Center and Techworld Plaza, with the scale of the building at its center, is reminiscent of the scale differences between urban and residential architecture. This was appealing as an opportunity to experiment with creating a garden on a scale usually referred to as a landscape.

As a public park, it would also afford the opportunity for the public to experience planting in what that would normally be reserved for smaller scale projects.

Finally, while I felt no absolute need to maintain the existing hardscape, the pattern of distinct spaces formed by the crossings and connections of the pathways, as well as the way parts of the site related to the architecture of the building, immediately suggested approaching the site as a series of small spaces which could be used to demonstrate representational plantsmanship in varying ways.

My ideas are presented as vignettes showing how I use my own plantsman-informed representation to variously address initial design ideas, inform design decisions and provide additional stepping-off points during the design process.

Schematic site plan.
Spacemaking

One of the first drawings I did looked at ideas of trees and spacemaking. Represented identically in plan, four different trees would create four very different spaces. Cherries with low, open branching would provide separation but leave views to beyond; Crapemyrtles with a low, dense canopy would enclose and might even seem oppressive; fastigate hornbeams, narrow and dense, would articulate the space and give it rhythm; and Honeylocusts with their medium height, open, spreading crowns would create a restful area of dappled shade. The linden-like gumdrop trees derided by Warren Byrd, not based in plantsmanship, would provide neither clue to how nor assurance that their effect could be achieved (should this be desired, another question entirely).
Connecting Architecture to the Landscape

Dan Kiley used bosques and allees of trees to extend the Miller house outdoors. On the right, Cherries, with their horizontal branching, are shown enclosing a space that extends the horizontal lines of the building facade and provides an outdoor room outside of the Washington Historic Society’s library. Below, Foster Hollies reinforce the vertical lines of the building, echoing the rhythm of the window bays.
The landscape can also be used to connect pieces of architecture to each other. The site and its Museum are backed by the enormous scale of the Washington, DC Convention Center to the north, and the relationship between the buildings can be emphasized in different ways based on the trees used on the site. Massive oaks and elms, both tall and wide, will reinforce the size of the convention center and establish the site as continuous with the city around it.

Small cherries and crapemyrtles will ground the Museum on its own site and establish it as a smaller, more intimate place. The tall English Oak will connect the buildings by reinforcing the architecture of both. Being able to compare and contrast various tree heights and forms is invaluable in making these kinds of decisions.

Trees relating the scale of the building to the convention center beyond, drawn to suggest mature size. From left, American Elm, Pin Oak, Red Oak, Honeylocust, Yoshino Cherry, Foster Holly, European Hornbeam, Crapemyrtle, English Oak, Zelkova, American Elm.
Plants in Communities and Plants on Their Own

The plants in a landscape live in multiple layers. How will the shrub, understory and canopy layers interact? What will be the effects when we populate the various layers with plants of like or of different form?

Likewise, a plant may be a singularly important component of a landscape. A massive Swamp Oak on the southeastern corner of the site stands over 70 feet tall and as wide. What can we learn from representing its interactions with the sky and the ground? How does it fill the space if we distill that space in a drawing and remove all of the other plants around it? Can we consider distilling the actual space? It’s also the work of the plantsman to assess the future of the landscape.
Time

The northeast and northwest corners of the site show representations of plants through time, allowing us to bring what we know about long- and short-term change of these plants to mind.

On the left, crapemyrtles are shown in four seasons, reminding us that their showy bark, summer flowers and often spectacular fall color provide many opportunities for showcasing them or to further heighten their effect in the landscape by combining them with other plants.

On the right, a mixed group of trees including elms, oaks, lindens and flowering cherries give us an idea of how such a grove will mature, including the periodic death and replacement (or not) of the trees, and how different growth rates will cause the smallest trees at planting time to dominate at maturity.
Movement in the Landscape

We try to create movement in the landscape in many ways, including planting on grids to provide direction and rhythm, and planting in shifted or collapsing grids to infuse the landscape with energy and surprise. How is this affected by using a variety of trees versus a single type? Can we heighten the contrast by adding vertical randomness to the horizontal? Will we ease the transition from a more organized to a more random space by using the same plants? Will this actually serve to heighten the awareness of the different types of organization through the similarity of the trees?
Final Thoughts

There is often in landscape gardening a special difficulty: that gap so hard to bridge between good design and good planting. I have known brilliant designers who were passionately keen on garden design but who had never pushed their study of plants far enough. They either used a very limited repertory of plants or left the planting to someone else. In the same way remarkable plant cultivators I have known, men with a vast knowledge of plants and their likes and dislikes, have rarely had any idea of how to use their plants to make a garden picture.  

Russell Page was, of course, both designer and plantsman and was, in fact, another like so many landscape architect-plantsman who came to the profession because of his passion for plants. Without that passion, and the knowledge to turn that passion into a living landscape that addresses the expanding expectation of what plants can do for modern society, we as landscape architects can offer nothing unique to our clients. As Warren Byrd says, we can no longer afford to be afraid of too much hands-on knowledge of real, tangible, living, baffling stuff.

South elevations drawing of site showing various tree forms and how they relate to the architecture of the building: (A) American Elm; (B), (E) Little Leaf Linden; (C) Crapemyrtle; (D) Pin Oak; (F) Upright European Hornbeam; (G) Yoshino Cherry; (H) Zelkova

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Works Cited


Appendix A: Bibliography of Plant Reading for Landscape Architects


Still, Steven M. Manual of Herbaceous Ornamental Plants. Champaign, Ill.: Stipes Publishing Co.,
Appendix B: Botanical Nomenclature for Plants Listed

Akebia .......................................................... Akebia quinata
American Beech ................................................. Fagus grandifolia
American Elm .................................................. Ulmus americana
Aster ............................................................ Aster spp.
Bald Cypress .................................................... Taxodium distichum
Bearberry ........................................................... Arctostaphylos uva-ursi
Black Locust ..................................................... Robinia pseudacacia
Black-Eyed Susan ................................................. Rudbeckia hirta
Boston Ivy ...................................................... Parthenocissus tricuspidata
Burning Bush ..................................................... Euonymus alatus
Butterfly Bush .................................................... Buddleia davidii
Camelina Cherry .................................................. Cornus mas
Cherry ............................................................. Prunus spp.
Cornflower ......................................................... Centaurea cyanus
Crape myrtle ...................................................... Lagerstroemia indica x
Cryptomeria ....................................................... Cryptomeria japonica
Daylilies .......................................................... Hemerocallis spp. and hybrids
Dogwood .......................................................... Cornus florida
Doublefile Viburnum ............................................. Viburnum plicatum tomentosum ‘Mariesii’
English Ivy ....................................................... Hedera helix
English Oak ........................................................ Quercus robur ‘Fastigiata’
Eupatorium ......................................................... Eupatorium rugosum ‘Chocolate’
European Beech ................................................ Fagus sylvatica atropurpurea
European Hornbeam ........................................... Carpinus betulus ‘Fastigiata’
Evergreen Olive ................................................ Eleagnus pungens
Fall Blooming Camellia ........................................ Camellia sasanqua, C. hyemalis
Foster Holly ....................................................... Ilex x attenuata ‘Foster #2’
Four O’Clock ....................................................... Mirabilis spp.
Goutweed ........................................................ Aegopodium podograria
Hardy Cyclamen ............................................... Cyclamen hederifolium)
Honey locust ...................................................... Gleditsia triacanthos
Indica Azalea ...................................................... Rhododendron indica x
Iris ................................................................. Iris germanica x ‘Edith Wollord’
Japanese Barberry .............................................. Berberis thunbergii
Lady’s Slipper .................................................... Cypripedium acaule
Leek ................................................................. Allium ampeloprasum
Lily ................................................................. Lilium x ‘Black Beauty’
Liriope ............................................................ Liriope muscari
Little Leaf Linden ................................................... Tilia cordata
Magnolia .......................................................... Magnolia grandiflora most likely
Maidenhair fern .................................................... Adiantum pedatum
Moonflowers ....................................................... Ipomoea spp
Morning Glories .................................................. Ipomoea spp
Pampas Grass ..................................................... Cortaderia selloana
Periwinkle ........................................................ Vinca minor and V. major
Pin Oak ........................................................... Quercus palustris
Poppy ............................................................. Papaver orientale
Purple Loosestrife ............................................... Lythrum salicaria
Red Oak ........................................................... Quercus rubra
Redcedar ........................................................ Juniperus virginiana
Red-twig Dogwood ............................................. Cornus sericea
Rhododendron .................................................. Rhododendron spp.
Scotch Broom .................................................... Cytisus scoparius
Serbian Spruce ................................................... Picea omorika
Spider Flower .................................................... Cleome spp.
Swamp Milkweed .............................................. Asclepias incarnata
Swamp Oak ........................................................ Quercus bicolor
Sweet Autumn Clematis ................................... Clematis virginiana
Sycamore ........................................................ Platanus occidentalis
Tarragon .......................................................... Artemisia dracunculus
Viburnum ........................................................ Viburnum x
Virginia Creeper ................................................ Parthenocissus quinquefolia
White Oak ........................................................ Quercus alba
White Pine ........................................................ Pinus strobus.
Willowleaf Cotoneaster ..................................... Cotoneaster salicifolius ‘Scarlet Leader’
Wintergreen ...................................................... Gaultheria procumbens
Wisteria ........................................................... Wisteria sinensis.
Yarrow ............................................................ Achillea millefolium
Yellow Flag ....................................................... Iris pseudacorus
Yoshino Cherry ............................................... Prunus x yedoensis
Yucca ............................................................. Yucca filamentosa
Zelkova ........................................................... Zelkova serrata
Vita

Education

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Virginia Polytechnic Institute and State University
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Master of Landscape Architecture Degree Awarded July, 2006
Graduate Teaching Assistant, August 1999 – May 2001

1997 – 1999
George Washington University Center for Career Education, Washington, DC
Certificate in Landscape Design, July 1999
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First Place, George Washington University Landscape Design Competition, May 1999

1976 – 1980
Cornell University, Ithaca, NY
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Design-Related and Office Management Software Proficiency: AutoCAD, Accurender, ArcView GIS 3.2,
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Professional Experience

2001 – Present
Jordan Honeyman Landscape Architecture LLC, Washington, DC

1991 – 1994
Signature Theatre Arlington, VA
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Society of American Florists Alexandria, VA
Director, Management Information Services (MIS)

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Cravens Nursery Fairfax, VA
Nursery Manager

Memberships

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American Society of Landscape Architects (ASLA)