CONTAINER TREE PLANTINGS IN THE CITY [1]

by Janice A. Cervelli

Abstract. The 4'X4'X4' raised container tree has been advocated as a quick, flexible, and inexpensive solution to tree planting beautification in the city. This paper evaluates the effectiveness of such containers to provide for both the physiological needs of the plant and the visual, functional, and aesthetic needs of urban design. A brief summary of the cultural problems of container trees in the midwest and northeastern states is followed by a discussion of the effectual role of trees in urban design and the creation of successful urban spaces. The value of the beautification container in this capacity is critically examined and alternatives to its use presented. Wherever possible, large shade trees planted at grade are suggested. Where conditions necessitate raised plantings, shade tree massings grouped in large planting beds are favored over the container.

One of the products of the beautification movement of the 1960s was the free-standing container tree. The approximately 4'X4'X4' planter, usually of concrete, wood or fiberglass, was the quick, flexible, and relatively inexpensive answer to the rapidly changing face of the city and the rage in pedestrian mall development. Downtown revitalization efforts perpetuated this practice well into the 1970s and advertisements today still praise its value in the city. Due to the many difficulties of tree planting in the city, containers do present a realistic alternative. Care must be taken, however, in the design and selection of a container to meet not only the cultural requirements of the plant, but also those of urban design. This paper evaluates the tree planter in this capacity and presents some alternatives to its use.

Cultural Problems

Continued use has shown surface planters to be notorious tree killers. Winter root damage is the major limiting factor of containers in the midwest and northeastern states (Gouin, 1976). The cold hardiness of root systems of many woody ornamentals has been found to be less than the aerial parts (Flemer, 1976). A minimally sized 4'X4'X4' planter will freeze from the sides inward exposing tree roots to the same temperature as the aerial portions and causing extensive damage. Little information is available to landscape architects and designers on root hardiness of particular species to aid in selection. Trees must also contend with restricted root growth and availability of nutrients. Since most of the feeder roots are in the upper 30" of soil, an increase in container depth does not compensate for horizontal root spread (Harris, 1983; Bernatzky, 1978). Container trees receive minimal moisture from rainfall and can suffer from leaf scorch, winter dessication, and partial defoliation. Ironically, plants can suffer also from overwatering and poor container design for drainage. Lastly, soil mixes with high humus content can subside, compact to ½ or less of the original level, and significantly reduce soil aeration (Paterson, 1976; Flemer, 1973). This myriad of cultural problems reduces the natural resistance of the plant to disease and insect infestation as well as its ultimate size and life span. Most large container trees rarely live over 10 years (Spirn and Santos, 1981).

Several successful remedies to these problems include improved soil mixes and container design for irrigation and drainage. Other remedies have not been so successful, including summer container tree programs. In a number of cities, trees were made available to the public on a rental basis. One such program in Cincinnati during the 1960s and 1970s provided a variety of trees in 4'X4'X4' concrete and wood containers. The trees were delivered in the spring, removed in the fall, and stored over winter on tennis courts under straw mulch. Numerous difficulties including damage to planters during shipment and winter root injury caused the program to be abandoned. A second unsuccessful solution advocated by many arborists is the use of smaller ornamental trees versus shade trees. The longevity of such

1. Presented at the annual conference of the International Society of Arboriculture in Indianapolis, Indiana in August 1983.

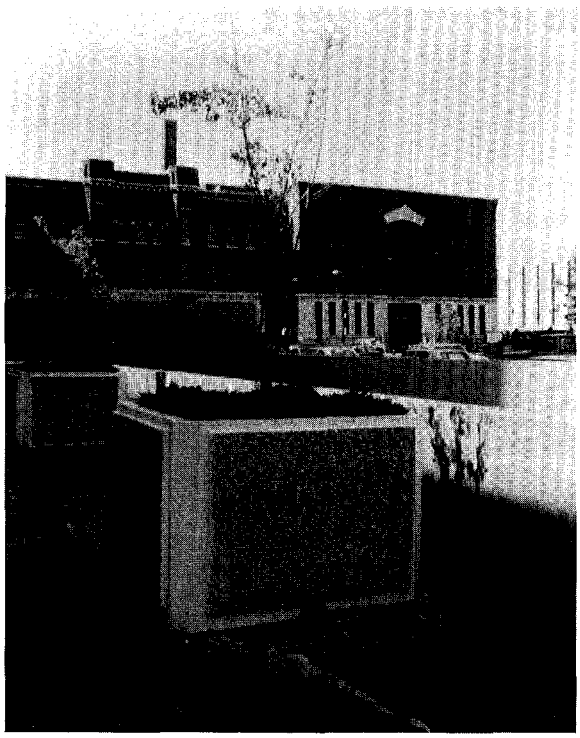

Figure 1. The typical tree planter.

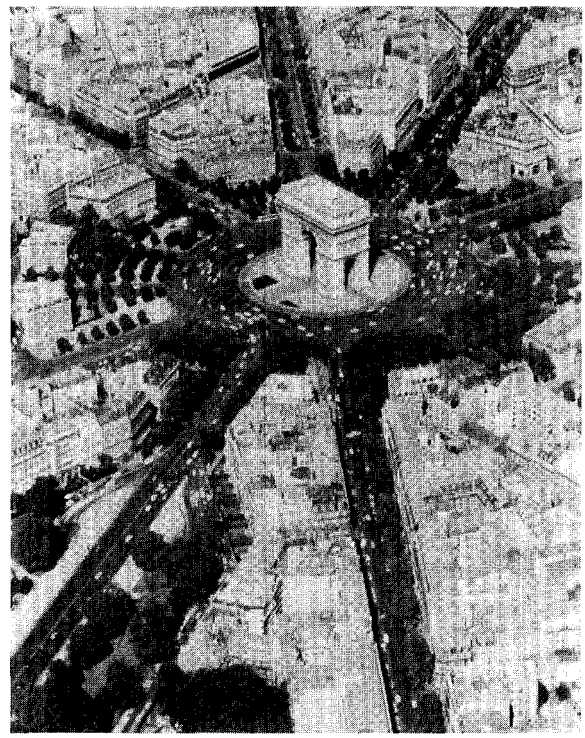

Figure 2. Paris: The use of trees on the grand scale.

trees as hawthorne and crabapple in the small containers has been found to be greater. However, the maintenance required to grow and maintain these trees in the city is often greater than that of larger trees planted at grade (Pirone, 1978).

Urban Design Implications

The value of tree planters in the city is especially questionable when one considers the overall role of trees in urban design. The tree has been described as the raw material of urban design (Arnold, 1980). Trees should be used in an assertive architectural fashion to reinforce and connect the spaces and corridors created by buildings. This is in direct contrast to their timid use as architectural softeners and view maskers. Tree plantings should be on a grand public scale rather than be intimate and private. Great numbers of 50′ shade trees such as London plane, red maple, honeylocust, and red oak with high canopies spaced at 25-30′ centers in groves and allees are favored over the individual ornamental tree. Large canopies should interconnect to enclose and unify space. Heavy pedestrian and vehicular traffic should continue below unhindered. The smaller ornamental tree possesses neither the crown volume nor branching height to fit the scale of the city. When combined with the container, the small tree can clutter traffic and fill urban space, not create it (Arnold, 1980; Pushkarev, 1975).

Many examples can be cited of urban design with large trees on the grander scale. A few include the use of the horsechestnut along the Champs Elysees and other avenues of Paris to visually connect such landmarks as the Arc de Triomphe, the Tuilleries, and the Louvre; the heavy use of maple and planetree to link the streets, pedestrian corridors and plazas of Portland, Oregon; and the elm groves of Chicago's Grant Park.

Successful urban spaces also require strong visual and functional integration with sidewalks, window displays, and doorways (Whyte, 1980; Pushkarev, 1975). A common misconception of designers is that pedestrian spaces need to be

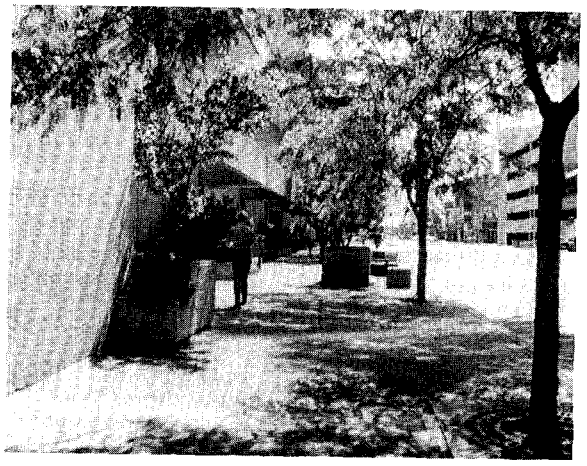

Figure 3. Planters can obstruct views and create threatening spaces.

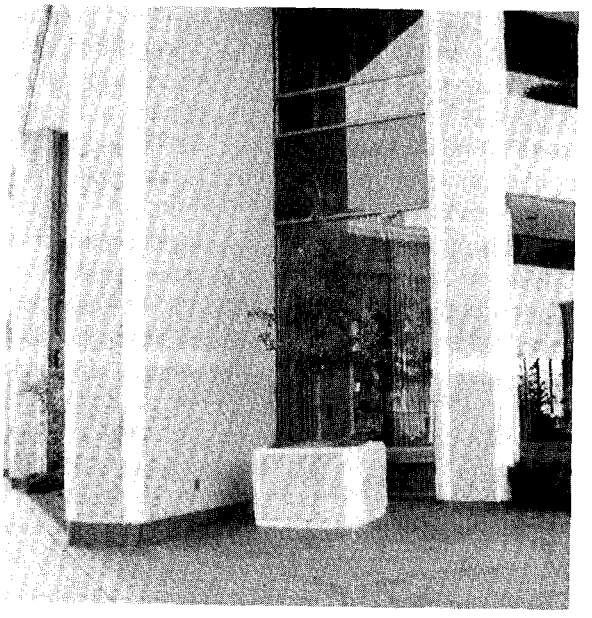

Figure 4. Free-standing containers can look awkward and dwarfed when placed next to a large building.

Figure 5. Partially sunken planters create additional seating opportunities.

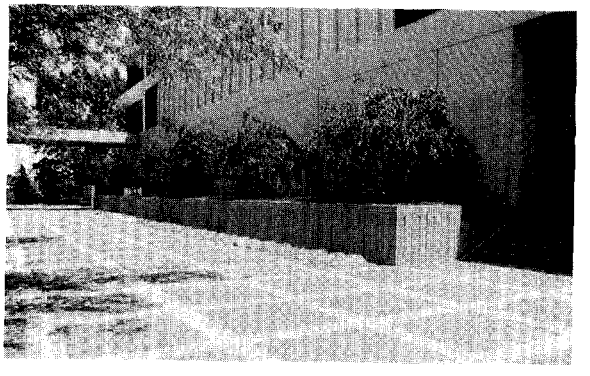

Figure 6. Planters integrated with buildings to add interest to often characterless walls.

walled off from the street. As a result, all street furniture including the 4' high planter, benches, signs and newspaper vending machines are placed between the space and the street. Such obstacles create poor visibility, increase opportunities for crime and even more important is the perceived fear of a likely incident. Thus, such spaces are avoided rather than used.

The often weak arrangement of planters creates spaces that appear disorganized and temporary. Initially pleasing arrangements are moved about in any number of ways only to be left for long periods. When placed immediately adjacent to a building, a single 4'×4'×4' container is dwarfed and detracts from the facade. Trash and other debris collect around its base to create an eyesore. This temporary quality of the planter imparts a transient image to the space.

Recommendations

Despite the numerous difficulties of planters in the city, their use cannot be totally disregarded. Unavoidable situations arise, such as insufficient soil depth, which can only be answered with con-

tainers. Several alternatives to the planter, however, should be considered. If single tree containers are to be used, they should be no less than 8′ to 10′ in diameter with 3′ depth for smaller trees (Arnold, 1980; Flemer, 1973). Additional container width insulates the roots from cold injury and provides additional anchorage, space, nutrients, and moisture for root development. The increased width also complements visually the spread and height of the crown. Individual containers should be fixed in place and maintained in a discernable and pleasing arrangement. To avoid the cluttering of a space with numerous planters, trees should be massed in a single large planting bed or turfed berm. Here, again, increased soil volume protects the roots and allows for the use of larger trees. In addition, the tree mass and bed form have stronger visual impact and are more effective in defining space than the single planter.

Where possible, placement of the container or bed partially below the pavement eliminates its awkward bulkiness. Raising the container 18″ above grade with the remaining 2.5′ below also creates additional seating opportunities. Single containers or large beds can be incorporated directly into the building. Materials and colors can then be matched for stronger architectural unity. The contiguous beds will also provide an interesting base to the building and add texture, pattern, and color to often characterless walls.

Conclusion

Because of the difficult growing conditions in the city, container trees will always play an important part in urban design. Thus, the choice and use of both tree and container should reflect their integral and permanent role in creating attractive and functional urban spaces. Such a consideration may preclude the use of the tree planter as a quick-fix solution to trees in the city.

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