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# Ornamental Horticulture Redefined<sup>1</sup>

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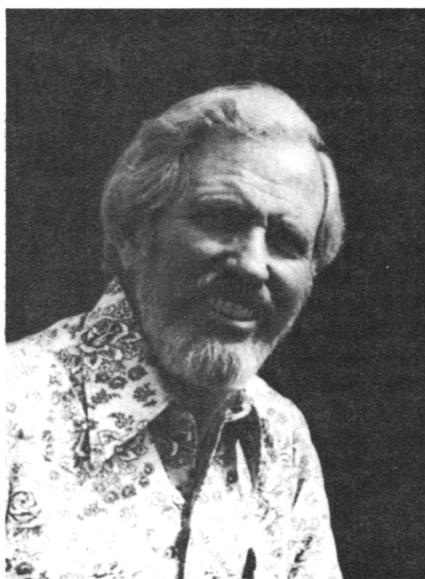
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**As horticulturists and landscape professionals, we need to examine the traditional idea of "ornamental horticulture" in the context of environmental constraints, resource conservation, and social accountability in our highly urban society. The current over-emphasis on the ornamental use of plants in our landscapes reflects human tendencies toward conformity, eclecticism, and decorativeness in landscape design. An analysis of these tendencies along with the changing needs of our society suggests the new, broader term "appropriate horticulture," emphasizing self-sufficiency in food and fuel production, urban needs, and an ecological orientation. This holistic concept of horticulture will allow horticulturists to become a more powerful force in our society.**

The past decade of our country's history has been a wild roller coaster ride of unexpected turns, jolts, and sudden plunges. Political, economic, and environmental crises have nearly dulled our senses, and we would like to get off the ride. Instead, we are being forced to assess our way of life to determine not only *how*, but *if* we will be able to meet the limits of this shrinking planet in the 21st century.

Our society is becoming increasingly urbanized. Over 90% of Americans live in cities. The world's population has more than doubled in the past 50 years. These facts have enormous implications for how we use our land and share our limited resources. Food availability is becoming a matter of national security (17). Energy is the focus of political strategy and may well change the balance of world power. The American trend of "growth-mania" is being checked by new economic models that do not emphasize high growth (6). Every sector of our society is being challenged to make do with less, and in the process we are learning that small can be quite beautiful.

In the West, the freeze of 1972 followed by the drought of 1976-77 forced us to evaluate how and why we plant our landscapes. The energy crisis, resource shortages, and



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economic decline have compounded similar environmental events in every region of this country, bringing a sense of urgency to this task. Those of us in horticulture and what is called "the landscape industry" will play a decisive role in directing how urban and residential land can be planted in response to our society's needs, energy limitations, and environmental constraints.

As a first step, we need to redefine the

familiar term "ornamental horticulture," or, better yet, we need to drop it altogether. It may date back to the days of Pliny in ancient Rome when Cato stated that "a city garden . . . ought to be planted and ornamented with all possible care" (18). The term is used in colleges and universities to distinguish general horticulture from floriculture, pomology, and other horticultural specialties. Ornamental horticulture emphasizes production and care of those plants used to enhance our inhabited landscapes. Unfortunately, the word "ornamental" has become synonymous with superficial and frivolous decoration. Mass production has rendered poorly designed objects acceptable in the marketplace by the application of ill-conceived decoration. The analogy with horticulture is apparent. Planting has become increasingly cosmetic as our society has become more affluent. A garden, a park, or a city deserves more than cosmetic decoration.

## Horticultural tendencies

Abundant examples substantiate the over-emphasis on ornamental horticulture in our cities and suburbs (Fig. 1-3). Three basic human tendencies can be "read" in today's gardens and landscape plantings: conformity, eclecticism, and decorativeness. By analyzing these trends we can see more clearly how horticulture must redirect its emphasis to meet the realities of the future.

*Conformity.* Lawn and foundation planting have been the sacred cows of the American

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landscape scene for the past hundred years. Our reverence for lawn, particularly the front lawn, stems from our predominantly Northern European heritage in which the greensward of the English landscape school is considered the "beau ideal."

Early garden writers such as Frank Waugh promoted the lawn as an essential part of every garden in every city. For him the lawn was an expression of democracy and freedom, never to be less than two-thirds of the space of any garden. Waugh insisted that "The substitution of the walled-up streets of the European town for the democratic open front lawns of the American streets would mean a political revolution, a social catastrophe, and a distinct esthetic loss" (15). This is heady rhetoric. But we can see from today's urban and suburban residential streets that the lawn, along with foundation shrubbery, has become the standard landscape regardless of climate, ecological context, or function. This is especially evident in the arid West. Anglos from the Eastern United States, eager to conquer the desert and civilize the West, have imposed this green grass conformity on Arizona, New Mexico, California, and the Great Basin States. Fortunately, there are signs that this horticultural imperialism is shifting toward sensible design and the use of drought-tolerant plants (3, 11). Even so, lawn and foundation planting still dominate the landscape not only of residential gardens, but of suburban corporate headquarters and office complexes.

Nursery catalogues and trade journals perpetuate this conformity by exhibiting photographs of the grass lawn as the ideal landscape. The turf-grass industry (instant sod lawns, irrigation, fertilizers, and mowing equipment) further promotes the lawn as a ground cover in any climate for any purpose. The ultimate aberration of this landscape use



Fig. 1. A collection of conifers, reminiscent of an alpine setting, mixed with tropical tree ferns defies the logical use of plants for shade, screening, and spatial definition. In this arid, western setting, several large shade trees would bring substantial shade and reduce air conditioning need.

is the turfed median island on which only the maintenance man walks.

The simplistic use of junipers or ivy to decorate the setting for buildings is another expression of this. These plantings establish an image that is both visually monotonous and ecologically unsound because of the monocultures they produced.

*Eclecticism.* Bernatsky suggests that people's gardens are like scrapbooks — full of collectibles, memorabilia, and souvenirs of past travels (1). These are imposed on the public in unenclosed front yards and in the design of public parks and quasi-public commercial landscapes.

Successful landscape requires planning

and training in the art of landscape design. Unfortunately, elementary and secondary school programs do not offer horticulture or landscape appreciation as part of a general studies program even though most people inevitably make landscape decisions. Some landscape architects even tend to borrow from other cultures — the Japanese garden or the formalist motif from France or Italy (13). These copies do not travel well because they are intimately linked with their native regions and cultures (18). Homeowners in this mobile society frequently try to recreate or transplant a familiar, remembered landscape in a new region. The family from New England longing for birches and maples will try to plant them in a barren yard of an arid western city. A member of a family in San Ramon, Calif., recounts this notion: "My idea of a real house is one of those places in the Midwest where they have sweeping lawns that go from house to house. No one puts up fences and there are giant trees." (16). Eclectic designs taken to the extreme result in disappointing failure of plants because of climatic incompatibility or peculiar visual incongruity because the style is removed from its regional context.

*Decorativeness.* The term "landscaping" has crept into our vocabulary to define landscape design or landscape architecture. Through common usage the term has become synonymous with decorative landscape planting. Cities regularly require "landscaping" around new buildings. A new house is "landscaped" after it is built. Deliberate, thoughtful site planning and purposeful planting design is relegated to cosmetic planting to cover the bare earth and decorate the building and grounds. This narrow view of landscape design and the use of plants inevitably leads to difficulties. The goal of creating instantly mature landscapes interferes with careful plant selection and arrangement based on human use, function, ecological considerations, and

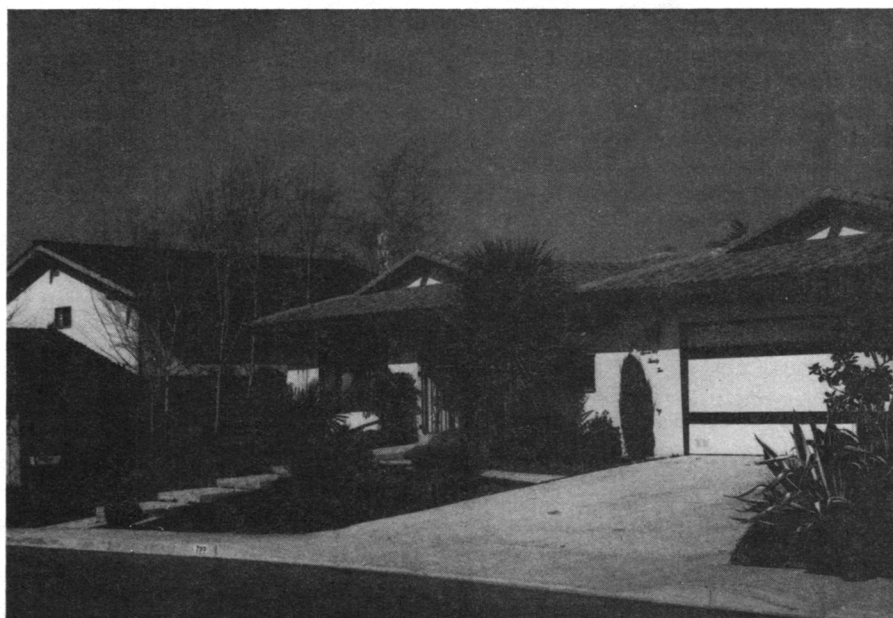


Fig. 2. A horticultural extravaganza of eclectic delights! Birches from Vermont, palms from Mexico, and a potpourri of "ornamental" plant in a pseudo-Japanese style garden in front of a pseudo-Moorish house. A pair of globe arbovitae sentinels at the street add a touch of French formalism.

long-term visual composition. Crowded or incompatible plants and incongruous mixtures lead to maintenance problems, high cost, unstable landscapes, and a disenchanted client or public.

James Rose stated that it is curious that a nation of such wealth, intellect, and natural richness condones mediocrity in its millions of residential, public, and business landscapes (13). As a nation we have not been known for deep convictions about gardening or an inherent concern for landscape design as have the Europeans. We are still a young country, searching for a uniquely American landscape tradition. Our society's attitude of conspicuous consumption is especially evident in new housing tracts where displaying spectacular individual plants supersedes sensible plant combinations that are both functional and visually attractive. Nursery catalogues, magazines, and newspapers proclaim the qualities of an outstanding All-American rose, a spectacular rhododendron, a new dwarf conifer, a "new improved" variety. The fascination with the Colorado Blue Spruce (*Picea pungens* 'Glauc') is exalted in gardens everywhere. The resulting incongruous collection of plants in some gardens, parks, and school grounds is reminiscent of a garrish Victorian garden, especially in more benign climates where the choice of plants is almost unlimited.

Botanical gardens and arboreta have unwittingly fostered souvenir-type plant collection by displaying plants as unique individuals in a museum-like setting with little regard for either ecological or aesthetic groupings. A few recent demonstration gardens have moved away from this trend, combining plants in well-designed arrangements within their regional context. The *Sunset Magazine* Demonstration Gardens in San Francisco's Strybing Arboretum and in the Los Angeles County Arboretum are good examples.

### New definition

This discussion of horticultural traditions of our society suggests the need to replace "ornamental horticulture" with a new term and a broader definition. We should abandon the purely ornamental notion in favor of the holistic viewpoint embodied in the term "appropriate horticulture," which I define as:

*Horticulture that is responsive to the environment on a long-term basis; reduces dependence on nonrenewable resources; is economically, functionally, and ecologically sound; is aesthetically pleasing and artistically satisfying; and is socially responsible.*

Appropriate horticulture implies a reorientation of purpose, emphasizing 1) self-sufficiency; 2) urban needs; and 3) an ecological approach.

**Self-sufficient horticulture.** A greater emphasis must be placed on *self-sufficiency* in terms of food production and energy conservation. This means greater individual responsibility for growing food crops, planting for energy conservation, and producing wood for fuel. The first two are possible in the home garden. The third should be a goal of urban

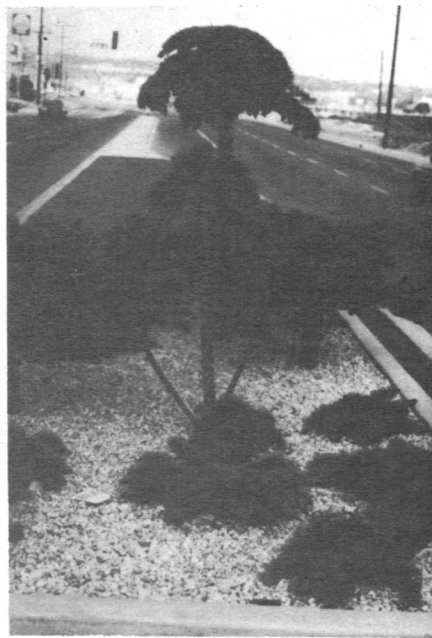


Fig. 3. The ultimate extension of the decorative use of ornamental plants! Plastic tarantula-like trees and shrubs along Jefferson Boulevard in Los Angeles reflect the complete absence of landscape consciousness.

forestry. Larger-scale agriculture that uses greater resources with increasing deleterious environmental effects is not the answer. Self-reliance and individual responsibility can make a significant difference in both food production and the amount of energy used in agricultural production (9).

The Integral Urban House in Berkeley, Calif. demonstrates that a family of 4 persons living on a small (11,000 ft<sup>2</sup>) urban lot can raise 100% of its entire supply of fruit and vegetables on 3500 ft<sup>2</sup> of space through intensive gardening. This figure breaks down as follows: all vegetables — 2500 ft<sup>2</sup>; fruit supply — 1000 ft<sup>2</sup>. The latter figure will vary de-

pending upon whether fruit trees are dwarf, espaliered, or standard size (7).

A Davis, Calif. subdivision of 224 units on 70 acres called Village Homes (Fig. 4-6) operates on the principles of maximum food production and resource conservation (14). In Eugene, Ore., Professor Richard Britz has proposed "The Edible City" project. Neighborhoods in Eugene are replanted to pool backyards into high-production urban farms (10).

In these examples, utilitarian food crop plants, rather than purely ornamental plants, form a major part of the home landscape. Lawns are used only for recreational activities. Drought-tolerant ornamental plantings exist, but are combined with food-producing plants, including edible strawberries, grapes, artichokes, and other vegetables and fruits.

Many urban and suburban dwellers will consider this home landscape bizarre. Nevertheless, we must formulate new images of residential gardens out of necessity. Much urbanization is located on prime agricultural land. Yet only a fraction of residential land is producing edible crops and none of the millions of acres of corporate landscapes is engaged in food crop production or designed for human comfort and energy efficiency.

Increasing food production in cities is not without pitfalls. The recent infestation of the Mediterranean fruit fly in California's Santa Clara Valley raises serious concerns about the practicality of dependence on urban crops. More research is urgently needed on this issue as well as on the problem of toxic elements in urban soils.

**Urban horticulture.** The emphasis of modern horticulture should be in the cities, since that is where 9 out of 10 people live and the uninvestigated problems of growing plants are the greatest. Vast segments of the population are not involved in efforts to grow plants

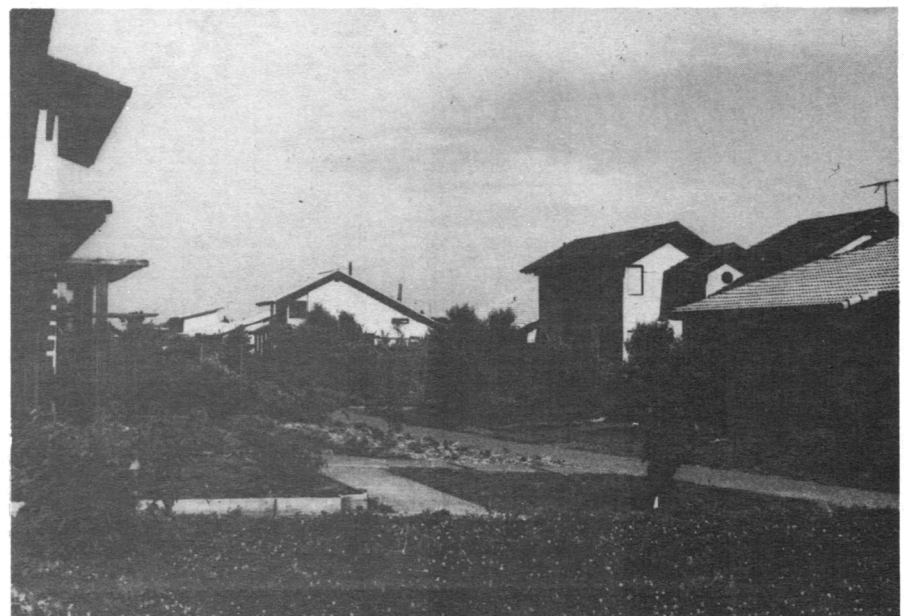


Fig. 4. At Village Homes in Davis, Calif., common open space planted with fruit trees, vegetables, drought-tolerant shrubs, and groundcovers is a productive alternative to the traditional lawn and decorative plantings.





Fig. 5. An individual resident's vegetable garden abuts a small strip of grass along a walkway through the common area of Village Homes. Its occasional unattractiveness is compensated by the realization that the landscape is productive rather than only decorative.

and improve their environments.

Horticulture programs for inner city areas by Louise Bush-Brown in Philadelphia, Augusta Bailey in Boston, and Charles Lewis in Chicago have been enormously successful. These have featured garden contests in tenements and public housing projects where the standard public landscape plantings are quickly destroyed. The resulting visual improvements are dramatic. But the long-range benefits come from increased community pride which carries over into other improvement projects such as painting buildings and maintaining clean streets. Success from gardening has helped the participants build individual self-esteem and confidence (5).

Such urban horticulture could be expanded to form the basis of a national urban improvement policy. The potential for improving quality of life for millions of economically deprived people is enormous. Senior citizen centers, nursing homes, and convalescent hospitals all can benefit from urban gardening programs. The medical director of the Cooperative Extension Urban Gardening Program at a senior citizens center in Houston reported that gardening helped improve the seniors' spirits and physical conditions. Similar opportunities exist for handicapped persons, children (4), and other "non-gardeners."

The urban trend toward smaller housing — apartments, condominiums, and cluster housing — calls for horticultural expertise to help people receive maximum benefits from their tiny balcony, roof deck, or patio gardens. More information and education on the use of containers and space-efficient plants for fruit and flowers is needed. The open space common areas of such developments afford an opportunity for community gardening by the residents, a viable alternative to the predominantly decorative landscapes of these housing types.

The evolving discipline of urban forestry requires the combined expertise and wisdom of forester, landscape architect, and horticulturist. The traditional forester is being thrust into the unfamiliar territory of cities where he has little experience in tree selection, improved species development, tree planting, and maintenance. In addition to the tree management responsibilities of the horticulturist and arborist, horticultural knowledge is needed to plan a city's tree system. Municipal tree master plans should emphasize the functional uses of trees — microclimate control, screening, and energy conservation — in addition to their ornamental value. Urban tree programs should be oriented toward com-

munity participation and education in this era of reduced municipal funding.

*Ecological horticulture.* The ecological basis for using landscape plants must be considered in both urban plantings and landscape design in rural or natural areas. Although horticulture is an ecological science, it has dealt primarily with introduced (exotic) ornamental plants for urban use. Likewise, the ecologist has avoided the urban ecosystem. Ecology needs horticultural expertise, and horticulturists must learn ecological principles.

The term "urban forestry" is valuable because it approaches the whole city as an ecosystem. Trees and other vegetation are viewed as part of a system rather than as individual ornaments. Management plans should consider the entire range of plant uses such as microclimate modification, air quality control, wildlife management, energy conservation, and urban aesthetics (2, 8).

Planting trees, shrubs, vines, and ground-covers for energy conservation should be part of urban development. Architects and planners should consider the value of landscape plantings deliberately arranged to maximize their cooling influence on buildings and outdoor space. More quantitative research is needed on the effectiveness of plants on human comfort. The results of this research must be put in understandable language and promoted in energy conservation codes and regulations for municipalities. A "Uniform Landscape Code" similar to the Uniform Building Code could develop minimum standards for energy conservation with plants, as well as water conservation in water-short regions.

Recycling plant residues to improve soil fertility and tilth is another essential horticultural practice that needs more vigorous promotion. Municipal composting reduces solid



Fig. 6. A path winding through commonly owned fruit orchard at Village Homes provides a parklike setting for residents. A large, grassy playfield is provided for active sports.



waste disposal and returns valuable organic matter to urban soils.

In both the rural and natural landscapes, the application of ecological principles is essentially the same as for the urban setting. The main difference is that the selection, use, and management of plants should be governed by the visual character of the predominant plant community. This is especially important in large-scale plantings along highways, in residential developments, and in recreational sites. All too frequently, we see incongruous exotic species planted in natural landscapes. For example, ornamentals such as purpleleaf plums, junipers, and iris beds are both visually and ecologically discordant along rural highways and in recreational subdivisions. The goal should be visual and ecological fitness for aesthetic and biological reasons and to reduce maintenance. The use of native species should be emphasized, but may not always be necessary.

Avoiding monocultures is another sound ecological principle. Managing natural succession and the direct seeding of species endemic to the plant community can enhance visual fitness and ultimately reduce maintenance. Potentially invasive species such as the brooms (*Cytisus* sp), pampas grass, (*Cortaderia selloana*) and certain species of the flowering plum should be avoided in natural areas.

There is significant progress in the United States and Europe toward preserving and enhancing indigenous landscapes. In England and other countries of Northern Europe, "ornamental parks" in cities are being converted to more ecologically stable natural

parks (12). "Biotype planting" is used to establish natural woodlands. The process accelerates the development of a natural plant community by interplanting nurse species such as alder with slower, long-term species of trees and shrubs.

### Conclusion

An intermarriage of horticulture, landscape architecture, forestry, and engineering is necessary if we are to break out of the bonds of ornamental horticulture. Education in horticulture must stress holistic concepts employing ecological principles as they apply to both natural and urban areas. Intensive food crop gardening and resource conservation is necessary to increase our self-sufficiency as an urban nation. Education in the social factors of urban life will prepare horticulturists to meet the needs of the deprived and non-gardening majority in urban areas.

As horticulturists, landscape architects, and amateur gardeners, we must first replace our own strictly ornamental notion of plants with a more holistic view of horticulture. With this perspective, we can develop vigorous public education programs in appropriate horticulture. Wortman pointed out that scientists tend to talk only with other scientists (17). We need to share our scientific research and our creative efforts in appropriate horticulture with those outside our field. We need to become a more cohesive and vocal force in a national and worldwide effort to improve the quality of life through the purposeful, socially and ecologically responsive use of plants in our landscapes. In a very real sense, we need to start a revolution.

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## SCHEDULE OF FUTURE MEETINGS OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE

Name & Date of Meeting	Location	Comments
79th Annual ASHS Meeting August 8-14, 1982	Iowa State University Ames Campus	Campus facilities will be used for program sessions and housing. New horticulture building to be completed.
80th Annual ASHS Meeting October 16-22, 1983	McAllen, Texas International Civic & Convention Center	Accommodations will be at several hotels and motels near the convention center. Tours of diverse horticultural industry in the Rio Grande Valley area will be featured.
81st Annual ASHS Meeting July 22-29, 1984	University of British Columbia, Vancouver	A joint meeting with the Canadian Society for Horticultural Science. Tours and sightseeing will be planned.
82nd Annual ASHS Meeting July 28-Aug. 2, 1985	Virginia Polytechnic Institute & SU, Blacksburg	Campus facilities will be used for program sessions and housing. Horticultural tours will be planned.
83rd Annual ASHS Meeting August 11-20, 1986	University of California Davis Campus	Will be an integral part of the XXIInd International Hort. Congress, hosted by ASHS and AHS. Accommodations will be on and off-campus in the Davis/Sacramento area. Tours and sightseeing will be featured.
84th Annual ASHS Meeting October - November 1987	Orlando, Florida Hotels in the Disney World vicinity	Will be back-to-back with meeting of the Florida State Horticultural Society; ASHS Tropical Region may also be involved. Tours and tourist attractions? Naturally!