

SOCIAL PERSPECTIVES IN HORTICULTURE

By

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A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Master of Science in Public Horticulture Administration

August 1987

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ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to the Longwood Foundation and the Longwood Graduate Program for making this study possible and to all those who served on my thesis committee, Charles Dunham, Edmunds Bunkse, James Swasey, and John Martin. Thanks are also due to the many people across the country who answered my questionnaire and generously offered me their ideas.

Many thanks to the friends and colleagues who provided continuous encouragement and were always there in my hours of need, especially Nicole Bernholc, Caryn Horwitz, and Rose Maloof, and to Marleny Franco and Regina Carlson without whom I would not even have completed the Longwood Program application form.

To my parents, Erwin and Ursula Zadik, I owe the most. They have always supported me and believed in me, and without them I never would have made it this far. This thesis is dedicated to them.

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ABSTRACT

That people derive pleasure and satisfaction from plants and the growing of them is undeniable. Expanding the scope of horticulture to include this human dimension provides an innovative approach to teaching horticulture. *Social Perspectives in Horticulture* is presented as an introductory course designed to develop an awareness of the interactions between people and plants and the importance of horticulture to human life.

As human beings we respond to nature and vegetation, we get involved in growing plants, and gardens play important roles in our lives. We prefer those settings that contain vegetation, and the presence of plants influences how we think and feel. Throughout history plants have served different needs and through their use given expression to different values. While the Chinese approach the garden as an expression of the essence of nature, a place designed for quiet contemplation, other cultures use garden spaces for recreation and entertainment. Additionally, horticulture has therapeutic and rehabilitative applications.

Today, as the built environment encroaches more and more upon the natural world, landscape design and aesthetics become vital elements in maintaining our quality of life. People garden in their back yards, in urban and

community plots, and on windowsills. Plantings are sprouting on rooftops, in office buildings, and in a variety of public and private settings. Through the use of horticulture there is potential for significant enhancement of our lives and environments.

A survey of horticulture and plant science departments revealed much interest in a course focusing on this aspect of horticulture. Such a course may draw students into horticulture and develop a consciousness of horticulture amongst the general population. Through interdisciplinary approaches to current and future world issues, the study of horticulture maintains its relevance and reaches out to a broad spectrum of students.

The reader is presented with a core of material as the basis for a course at the introductory level. Concepts are introduced, and instructional objectives and resources are provided in the hope that the subject matter will be offered as a separate course or incorporated into existing horticulture classes.

INTRODUCTION

The pleasure and satisfaction that people derive from plants and the growing of them, presents a different perspective for the teaching of horticulture. *Social Perspectives in Horticulture*, designed and suggested as an introductory course, stresses the human aspects of horticulture. Starting with an exploration of human responses to and interaction with vegetation and nature, it traces the development of gardens and the roles that plants and gardens have played in people's lives and cultures through history. Landscape design and aesthetics are becoming increasingly important as natural areas are transformed into built environments. The effective use of plants in homes, shopping malls, office buildings, residential communities, highways, and urban areas has the potential to enhance the quality of human life.

The aim of stressing this human perspective is to promote a better understanding of the role that horticulture might play in today's rapidly changing world, e.g., using horticulture in urban and rural development and in designing for aesthetic pleasure. Plants and gardening also have an important place in the economy. Horticultural therapy; urban, community, and corporate gardening; and recreational horticulture are additional examples of how horticulture has become a part of our modern way of life.

There is a danger today, as we greatly expand all the boundaries of knowledge, that people become so involved in minute details that their view may become constricted and that they may lose sight of the larger world around them. This danger also exists in horticulture where we may become so focused on the plants that we forget why we are growing them. It is important to keep our concern about plants in perspective. Obviously, research and production are vital elements of horticulture, but they must remain within the broader context of the scope of horticulture, that is, that we are studying and growing plants because people like (or need) them. Environmental concerns, urbanization, and world hunger problems are issues that must be addressed. Horticulture has the potential to help us meet some of our needs for an optimal environment and we need to start making more movement in that direction.

Evidence That People Like Plants and Gardens

Although there has been relatively little scientific substantiation, there is little disagreement that generally people like plants. There is, however, much indirect supporting evidence.

One can trace the interest in and use of plants back to the cave art of the Paleolithic era and the flowery funerals of that time (60,000 years ago), which show an early awareness of plants (Janick, 1979). Certainly by the time of the Neolithic revolution (7-8,000 years ago) when agriculture was developing, there was a

consciousness of plants. Religious tradition presents the first garden, the Garden of Eden, and ever since, people have tried to recapture that "earthly paradise" with their own gardens (Prest, 1981). The ancient Egyptians used the lotus and the date palm as symbols of their culture and they created elaborate gardens. Later in Pompeii the art of interior horticulture flourished (Herbst, 1984). From the times of the early Egyptians through today, people have always had gardens of one form or another, and in response to the changing styles and tastes, traditions of garden design and landscape architecture developed.

Plants as a source of food, fiber, and medicine through the ages have been studied in the field of economic botany. Scientists have traced and documented the development of agriculture, others have followed the movement of plants with people across continents,¹ and garden historians have examined the different garden design styles. These studies suggest great interest in how people and plants have evolved and developed together, and how people have used plants. These approaches, however, have often neglected much of how people interact with plants except for how they have manipulated them.

Interest in plants and gardening continues today. Gardening is the number one outdoor leisure activity (Gardens for All, 1984). According to the National Gardening Association, 71 million households reported participating in

¹See Houghton, Claire S., *Green Immigrants*.

lawn and garden activities and an additional 18 million said they would have gardens if they had the space (National Gardening Association, 1985a, 1985b). Besides saving money and having fresher vegetables, enjoyment is a primary reason for gardening (Butterfield, 1982). The Nursery Marketing Council Survey (1979) showed that 91% of the respondents thought that improved appearance of their property was the most important benefit of plants in their yards.

The majority of Americans (67%) said they would like more gardens in their communities (Butterfield, 1982) and, in fact, urban and community garden projects are on the rise. In 1982 there were 1.5 million community gardening plots in the United States (Robinson, 1982). Many garden clubs sponsor civic beautification projects. Throughout Europe many allotment gardens and small-garden areas are visible around the cities (Davis and McArdle, 1972). American cities are sprouting greening projects such as those sponsored by the Pennsylvania Horticultural Society in Philadelphia and the Green Guerillas in New York. The total number of street trees in the United States is estimated at 49 million and the total expenditure on municipal trees in 1982 was approximately \$527 million (Kielbaso et al., 1982). Small urban parks and landscaped traffic islands are familiar scenes in today's landscape.

The retail plant industry is booming. Consumers support a large number of florist shops, garden centers, nurseries and mass market plant outlets. There are over 20,000 retail florists in the United States, which in 1982 generated \$3.125

billion in sales (Voigt, 1984), and Americans are spending more on flowers. In 1985 the annual per capita consumption of cut flowers rose 10.3% to \$20.29 (Ornstein, 1986). Total retail sales for lawn and garden products reached \$15 billion in 1984, up 17% from the previous year (National Gardening Association, 1985b). In New Hampshire, horticultural products have become the second largest industry in the state (after dairy), having increased in volume from \$36 million in 1981 to \$50 million in 1985 (Milne, 1985). The shelves of bookstores are stocked with an ever increasing number of garden magazines and new and reprinted horticulture books (see Table 6-2, p. 131). The interior plantscaping industry has recently become a multi-million dollar business that is growing rapidly (at a rate of 15% per year from 1981 to 1983). The Florida Foliage Association estimated that growers sold 165 million dollars worth of plants (at wholesale values) to the interior plantscaping industry in 1983 (Lewis, 1983), and in 1985 the average size interior plantscaping firm had annual sales of \$250-500,000 (Prince, 1985). Contemporary architectural design now considers plant needs as well as human needs. The increasing number of office buildings, hotels, shopping malls, and homes with atria and skylights is evidence of this.

Since the founding of the Philadelphia Society for Promoting Agriculture in 1785, there has been consistent growth in the number of organizations promoting horticulture: plant societies, garden clubs, "friends" groups (of botanic gardens and arboreta), horticultural societies, and professional and trade organizations (Ballard, 1978). Visitation to public gardens is high. Longwood Gardens admitted 696,250

people to its grounds and greenhouses in 1983. Garden travel tours are becoming a popular and lucrative business and people are now exploring gardens the world over.

Research on plants in the indoor environment has shown them to have a positive effect on how people feel toward that environment (Laviana, 1982). The John Deere Corporation observed enhanced creativity and productivity among employees in their new administrative center where plants are integrated into the design of the building and where all employees are within 45 feet of vegetation (Sommers, 1984b). Research shows that people overwhelmingly prefer "nature" scenes to urban and built environments, and those urban scenes with vegetation are always preferred to those without vegetation (Kaplan, Kaplan, and Wendt, 1972). Land values are higher for land with trees and for property near parks high in vegetation (Ulrich, 1980). Ulrich showed that stressed people felt better after viewing slides containing vegetation as opposed to viewing urban or built scenes (Ulrich, 1981). A survey of over 4500 members of the American Horticultural Society and readers of *Organic Gardening* showed that overwhelmingly the most important satisfaction gained from gardening comes from the "feeling of peacefulness" and the "quiet and tranquility" it provides (Kaplan, 1983).

All this suggests tremendous interest in plants and gardening and a potential market, which, no doubt, much of the horticulture industry would like to capture further. But, how many horticulturists really think about how important

plants are to people? Why do people like plants? Why do they grow plants? What roles do gardens and plants play in people's lives? Education of future horticulturists must address these questions if the field of horticulture is to continue to be relevant.

Horticultural Education

Agricultural and horticultural education have experienced many changes over the past decades. In the 1960's, many of the horticultural programs that had begun as vocational programs started to place more emphasis on principles rather than production practices. A broader education was stressed and "core" curricula were instituted. Many schools merged introductory courses into a basic "plant science" class. Problems arose with these approaches. If too many core requirements prevented students from taking horticulture courses in their first two years, then students changed their majors out of horticulture (Mohr, 1965). Without introductory horticulture courses, the image of horticulture, which is rooted in those classes, is lost (Denisen, 1965).

The 1970's saw great increases in enrollments with larger numbers of women, minorities, and urban students entering agriculture (Armstrong, 1977). There was a move toward offering non-traditional education programs to better serve the existing student body and to reach out to other potential students (Mowrer and Folks, 1977). Courses offered to non-majors were tremendously

popular with many classes overflowing and many students switching their majors to horticulture (Taylor, 1972). The plant industry was in a period of rapid growth. Agricultural programs were changing in response to the increased student enrollment, the changing student body composition, and heightened environmental awareness. Programs were expanded to include the social, ecological, psychological, and economic aspects of agriculture, as well as international, environmental and agricultural studies (Merritt, 1977). Since the end of the 1970's and into the 1980's enrollments have been declining. A lower percentage of high school graduates are now going on to college and colleges are experiencing high drop out rates (Mowrer and Folks, 1977). Enrollments in the plant sciences are decreasing at an even higher rate, from 15,661 undergraduates (16% of total enrollment) at the State Universities and Land Grant Colleges in 1978 to 11,014 (12%) in 1981, to 7,662 (10%) in 1985 (National Association of State Universities and Land Grant Colleges, 1985).

Statistics show an attrition rate of 50% in agriculture, for which more introductory courses early in the students' careers have been suggested as a remedy (Daluge and Thompson, 1981). Those without previous experience in horticulture must be provided with a basic understanding of horticulture, or schools will not be able to retain them as students. A study done by Lohr and Cotter (1984) revealed that a single introductory horticulture course was effective in reaching a variety of students, improving their attitudes towards plants, and increasing their knowledge of horticultural concepts.

Today, there are still non-majors enrolled in horticulture courses. Some departments have developed "service" courses for these students. These classes are often controversial, frequently perceived as being offered at the expense of other "more important" classes. However, there is a place for these classes as there certainly is a demand for them and horticulture departments have a responsibility to cultivate a consciousness of horticulture among the general population. With declining enrollments, faculty may possibly be more available to teach these classes. In terms of benefits to a department, classes offered to non-majors may draw students into the department as well as providing a service to the general university population, thus reflecting well upon the department.

Survey of Horticulture and Plant Science Departments

In assessing the need for a course in *Social Perspectives in Horticulture*, a questionnaire (see Appendix A, p.144) was sent to horticulture and plant science department chairs at 95 colleges and universities in the United States and Canada (see Appendix B, p.148). The course was originally suggested for horticulture/plant science majors only and was called *Humanistic Horticulture*. Sixty-five people (68%) responded and some interesting results appeared from this survey.

Thirty-four people (52% of the respondents) said they would or might be interested in offering such a course to their students. Twenty-four (37%) already

incorporated some of the suggested topics in other course offerings, and many suggested this as an appropriate method of offering the material, rather than segregating it as a separate class. Three schools are or were offering related courses. Kansas State University had offered a class *Plants, Man, and Environment* which explored how plants and people interact and how this influences environmental quality.² Texas A & M University offered *Sociohorticulture* as an upper level special topics course covering horticultural therapy and horticulture in urban and rural development. The University of Tennessee offers *Environmental Horticulture* as a beginning horticulture class, which covers how plants relate to the environment and to people in the environment. At California State University in Chico, they are currently considering an upper division course for majors and non-majors on the role of ornamental horticulture in society today and in the future. At other schools some of the topics are frequently covered in design courses.

While ten of the respondents mentioned offering classes specifically for non-majors,³ twenty-two recommended that the proposed course not be limited to horticulture/plant science majors, but rather should be extended to the general university, continuing education programs, extension etc. Reasons for this included recruitment of students into horticulture as well as developing a general sense of horticulture, which would be valuable to the horticulture industry.

²The course was discontinued when the professor who taught it retired.

³Since this was not a specific question on the questionnaire, the actual number of schools offering courses for non-majors is probably much higher.

There were additional positive comments about the proposed course, even among those who said that they did not think they could or would offer the course. (For a detailed list of comments see Appendix C, p.161.) Hindrances to offering it included the unavailability of faculty, the lack of the appropriate person to teach it, already tightly structured curricula, and promotion and tenure policies favoring research. Other negative responses were concerned about budget considerations, already heavy teaching loads, the non-applicability of such a course to a production curriculum,⁴ insufficient scientific basis, low priority, and unavailability of appropriate texts.

Clearly the responses indicated that there is a receptiveness in the academic world to a course, *Social Perspectives in Horticulture*, despite problems fitting it into traditional curricula and finding faculty to teach it. The survey revealed a great deal of faculty interest in developing new approaches to horticulture, and Merritt (1984), reporting on the National Assessment of Agricultural and Natural Resources Curricula Project, stated that many faculty and administrators see a need for more innovation and change in agriculture curricula. Thus, such a course appears to be worth pursuing.

⁴This is just the point I am making, that students need a broader perspective.

Directions

Teaching effectively means more than high job placement statistics. A university is concerned with developing students' intellect, values, and philosophy, and a depth of understanding in their individual chosen fields, enabling students to become responsible as well as productive (Batie, 1979). Universities must produce students who are able to think in a context of the world as a whole, who are able to take an interdisciplinary approach, and who are adaptable. People must be able to understand issues and phenomena and deal with them effectively. In teaching horticulture, the human aspects and the broader implications of horticulture could be essential elements in accomplishing these educational goals.

Many instructors are attempting to cover the social implications of horticulture in their classes, yet much of what is being proposed here is not taught, and consistency is lacking. The suggested course content is not a departure from traditional horticulture, rather it is the backbone of it. The object is for students to emerge with a clear concept of why and how horticulture is important to people, and to be able to apply those concepts effectively to practical situations. All students have much to gain from learning about this basic component of life.

On the practical level, the implication for reaching greater numbers of students and bringing them into horticulture is especially important with declining enrollments. Increasing leisure time, greater population densities, high levels of

stress, and visual pollution are current issues that need to be addressed. Equally important, and a concept needing exploration, is the meaning that people find in their environment. The human approach to horticulture is a good vehicle for working on solutions to some of the problems of today's world. It will also ensure that horticulturists, and non-horticulturists as well, remain in touch with what is going on around them.

This course will attempt to set forth the basic ideas to be covered (see Table 1, p. 14 for an outline of suggested topics). Each chapter addresses a particular topic, introduces concepts, and provides instructional objectives, references, and resources. With this structure teachers will be able to offer the course in its entirety or chapters may be incorporated individually into existing courses. To attract non-horticulture students early in their college careers, it is recommended that the course be set up without prerequisites. This outline is, of course, only a starting point and it is hoped that instructors will go beyond these topics to touch upon the vast subject of the essential connections between plants and people.

Table 1: Suggested Topics for a Course in Social Perspectives in Horticulture

1. Human response to vegetation and nature
2. Active plant/people interactions—why do people grow plants?
 - a. Characteristics of plants and gardening that cause human response
 - b. Effects on people and communities: Physical, psychological, aesthetic, spiritual, economic
3. Historical role of gardens, plants, and flowers in people's lives, including a cross-cultural perspective
4. Plants and gardens in landscape design today
 - a. Urban settings
 - b. Malls
 - c. Buildings
 - d. Highways
 - e. Residential communities
 - f. Public parks and gardens
5. Horticultural Therapy
6. Horticulture for everyone
 - a. Urban, community, and corporate gardening
 - b. Home and recreational gardening
 - c. Children's gardening
 - d. Barrier-free design of gardens
 - e. Adaptive tools and equipment
 - f. Garden clubs, plant societies, and other organizations

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CHAPTER 1

HUMAN ATTITUDES TOWARDS NATURE AND VEGETATION

In understanding the importance of horticulture in people's lives, we need to begin with the interactions between people and nature. How do people feel and think about nature, how do they behave and function in the natural world, and what are the origins of these interactions and responses? These are not simple questions with easy answers. They lead to explorations of human needs and preferences for vegetation, people's attitudes towards nature, and meanings derived from and given to nature. Recent research has begun to explore certain responses to vegetation—how people feel about and behave towards vegetation, especially in comparison to how they respond to built environments. These explorations provide a base upon which to build a perspective that allows a broader view and enables us to better comprehend that horticulture offers more than a final product of a green plant, a tasty vegetable, or a pretty flower.

Human Need for Nature

The natural environment has served as a source of inspiration for humans, as evidenced by the many creations in the arts, literature, and religion that are based on nature. Even our language reveals some of our feelings towards nature. The expression "mother nature" indicates a desire for the nurturing and stability to be found in nature. While our technological world changes rapidly, nature (if undisturbed) continues on the same course and most changes occur slowly. The seasons come and go, there is growth, and each spring we can count on the grass turning green, while trees provide a sense of permanence. Nature provides a sense of time as well as a setting in which we can live in harmony with the natural rhythms and to which we can escape to find quiet, solitude and tranquility. We find much beauty in natural scenery, and there seems to be something in that beauty that touches each of us deeply. Thus, nature provides us with certain intangibles that nevertheless meet certain needs that cannot be met elsewhere.

Primitive humans lived intimately with nature, and physical and mental functions were greatly affected by the rhythms of the sun, moon, and seasons. These cycles still function within us today, even though we have modified the temperature and lighting of our indoor environment and have obscured those natural rhythms. A good example is the jet lag people experience when their inner time clock is out of phase with the external environmental cycle. The artificial or built realm is not able to satisfy the need for the natural because it lacks essential

attributes of the natural world—the capacity for growth and change and thus a dimension of time (Wohlwill, 1983). Although a silk flower may provide the beauty of a real flower, without that essence it remains only an ornament imitating nature.

Many of our modern diseases such as hypertension, ulcers, heart disease, and hearing losses are exacerbated by a lack of optimal environments, those to which we are most adapted (Driver and Greene, 1977). Perhaps some of the depression, aggression, neuroses, and psychoses today result in part from attempts to deal with conditions of crowding, noise, and pollution, and the distance between ourselves and the natural world (Iltis, 1968). Their surroundings have a definite influence on how people feel about themselves, which in turn becomes a determining factor in how people treat their environment (Stainbrook, 1973). Thus, it becomes a vicious circle when those with poor self-esteem become destructive of their environment, creating ugliness that only reinforces the negative self-image with which they began.

Nature and the natural experience provide a setting in which people can find tranquility and revive themselves, helping them to cope with the stresses of modern life (Stainbrook, 1973; Heimstra and McFarling, 1974; S. Kaplan, 1977). Steven Kaplan (1977) describes nature as involuntarily interesting, not requiring any effort to pay attention and thus providing a rest from the overstimulating and often stressful urban situation. Wohlwill (1983) attributes this restorative power of nature to lower apparent levels of complexity, contrast, stimulation, and movement

in comparison to the technological environment. Hugh Ittis (Ittis et al., 1970) provides a possible explanation of this and other similar human behavior. He theorizes that humans are genetically programmed to need plants in their environment as a result of human evolution in a green world over a period of millions of years, and that since our sensory mechanisms developed over time in natural surroundings they are able to respond to natural stimuli.⁵ Driver and Greene (1977) term this an innate capacity or predisposition towards nature. They note, however, that sometimes when our exposure to nature is limited, as in our modern technologically-oriented culture, that predisposition may not be evident unless it is somehow activated.

Evolution, being a slow process, cannot keep pace with technology. As progress and technology lead us further from our natural origins, the needs for nature escalate, although our technology may blind us to the fact that we are still part of a biological system.⁶ It seems likely that humans are genetically prepared for clean air and a diverse green landscape, even though we have managed to adapt culturally to an urban environment. In our constructed indoor environments we attempt to imitate some of the conditions of our origins: warm humid air, green plants, and animal companions.

⁵This raises the converse question of how well we respond to artificial stimuli such as fluorescent lights?

⁶Today we have also altered the natural selection and adaptation processes with our artificial environments and medical technology, providing for survival even when we may not be at all adapted to our environment.

Some biological studies have been conducted that support the idea of genetically determined responses to habitats. People's responses to natural⁷ environments frequently indicate a strong preference for park-like settings, i.e., short grass, no underbrush, and scattered trees (Balling and Falk, 1982; R. Kaplan, 1977; Rabinowitz and Coughlin, 1970; Zube et al., 1974). These settings approximate the African savanna, the environment where a portion of human evolution is believed to have taken place. Gordon Orians (1980) explains the positive emotional responses to savanna-like settings in terms of habitat selection theory, the savanna having been an optimal environment for early humans. It seems logical that humans should prefer environments in which they are likely to thrive, although today social influences may distort innate preferences (Kaplan and Kaplan, 1982).

Studying this further, Balling and Falk (1982) found innate preferences to be more visible among younger subjects less influenced by social forces and experience. The evidence suggests that early experiences in natural environments greatly affect needs and satisfactions later on in life (Ladd, 1977). People are frequently most comfortable in settings with which they are most familiar. Rachel

⁷Natural is a difficult term to define in this context. If used in contrast to human-influenced environments, then only the pristine wilderness can be considered natural. However, human-influenced environments, such as parks, include natural elements. In most of the literature, natural is used to designate environments that contain vegetation and, although human-influenced, do not contain human artifacts. It is usually a question of degree of naturalness. Furthermore, thinking of nature in this manner assumes a distinction between humans and nature. This raises the question of whether such a separation is valid or whether humans and their creations are not an integral part of nature.

Kaplan (1976) demonstrated that given prior orientation children were more comfortable and confident in the natural setting, and derived greater enjoyment from the experience. Charles Lewis (1982) made city children more comfortable in the unfamiliar natural setting by drawing parallels between the urban environment and "nature city," thus providing them with a framework that enabled them to understand the functioning of the natural system. Those people who grow up without first-hand experiences of nature will perhaps find those settings threatening or at least will feel uneasy when they find themselves in what is for them a strange place. Our lack of opportunity to experience nature in surroundings filled with the products of modern technology may obscure innate potentials and needs. Thus we return to Driver and Green's (1977) idea of a predisposition towards nature that still requires some activation. It becomes a difficult task to determine what are actually innate needs when other influencing factors come into play.

Everett Conklin, a pioneer in what is today a highly successful interior landscape industry, based his business on the idea that people require plants and flowers in their environments in order to be happy. He called this a "primal association" (Conklin, 1972), basically the same idea of humans evolving together with flowers, fruit, and trees, and thus needing these things, not as luxuries, but as requirements of their biological heritage. The weekend flight to the country, the large numbers of vacationers invading the national parks, and increasing garden visitation (especially amongst the urban population) suggest a drive for more contact with nature or escape from the built realm (Horsbrough, 1972). It is

important to realize that plants are a significant part of that outdoor environment and frequently are the main attraction, such as the redwood forests.

Attitudes Towards Nature and Meaning in Nature

At one time humans were so essentially a part of nature that a concept of nature as a separate entity did not exist. As civilization began that concept of nature was constructed. Humans interacted with and altered their surroundings and created a division between themselves and nature, although that construct may be a solely a product of Western culture. People's relationships to nature and the perceptions of that relationship have been influenced by religious, social, political, and economic forces. From prehistoric times the world's peoples have espoused a variety of attitudes towards nature, as expressed in mythology, science, art, and philosophy (Glacken, 1970b).⁸ Even scientific interpretations of the place humans hold in the realm of nature provide a variety of theories that have frequently been used to uphold existing notions and social arrangements rather than cause a reexamination of those ideas (Gould, 1977).

A concept of the relationship between humanity and nature is part of any view of how the world operates. Cultures have at different times viewed nature as

⁸See Clarence J. Glacken's works (1967, 1970a, 1970b) for more detailed discussions of the interpretations of the relationships between humans and nature. Also see Alfred North Whitehead's *Adventures of Ideas* (1933) where he identified the ways that people perceive the laws of nature.

hostile and to be feared, or have appreciated nature as a friendly force in their lives. People have alternately identified themselves as a part of nature, as the Navajo Indians, or as separate from, often above, nature (Chemers and Altman, 1977). At times nature has been a predominant emotional and aesthetic influence, as in Japanese culture, yet at other times this value has disappeared.

Some primitive cultures viewed plants as the living bodies of spirits, such as the tree spirits that were worshipped (Westhoff, 1983; Moxley, 1980). Later, trees came to be seen solely as the abode of those spirits, rather than the embodiment of them. In ancient Greece and Italy groves of trees were set aside as sacred, dedicated to the gods, and carefully protected. In Hinduism, trees, herbs, and flowers were worshipped and treated with a familial kind of affection.

There have been various beliefs in god, and many ideas about the place that god, nature, and humanity hold in relation to one another. In early Christian times when people spoke of nature, they envisioned a world where god was the controlling force, and people and nature were thought of as designed by god (Glacken, 1967). Since the Copernican revolution, however, humans have been placed in the position of dominance over nature. Our's is a more utilitarian society, less concerned with the intrinsic value of nature, and more concerned with how we can use it. Yet, there are those who still place a high value in nature, believe in a unity with nature as Thoreau did, and view humans as a part of the ecosystem.

Tuan (1974) outlines six historical views of the attitudes towards wilderness and the city, and shows how these values towards the environment have changed over time.⁹ At first the garden and village were the sacred areas and the wilderness was the dangerous or profane area. Later, the ideal became an intermediate zone, or middle landscape, between the city and the wilderness. Today our values are almost totally reversed as we speak of the city as the "wilderness" or "jungle." Contradictory views have also been held at the same time. In the Bible, the wilderness was a cursed place yet also a place of refuge. Early American pioneers saw the wilderness as a place of opportunity yet something to be overcome. That opportunity lay in the destruction of and domination of the wilderness.

The development of the appreciation of nature for itself came in reaction to the problems of urbanization and, later the problems of industrialization (Dubos, 1972). Before this time, nature served mainly as a backdrop to human activities. During the Romantic period nature became glorified and all the arts of that time gave expression to this feeling. This exalted view of nature was expressed in landscape painting, music, and literature, e.g., Brahms. In the late 19th century, there was a growing concern about the increasing human influence on and destruction of the natural world. Before that time the human alterations of the environment were not considered to have a large scale negative impact (Glacken,

⁹See pp. 104-105 of Tuan's *Topophilia* for an excellent graphic representation of this.

1970a). In North America, nature writing and the conservation movement reached a peak during Theodore Roosevelt's administration, and that interest reappeared again as a strong force in the 1960's with a great concern for nature for itself. North America does have a rich history of nature writers and activists,¹⁰ and today there is an abundance of environmental groups¹¹ responding to the vast destruction of our natural resources. Very strong among these people is a feeling for the spirit of nature and the wilderness.

Today, the concept of the natural world is a difficult and complex issue. There are some who see nature only providing "non-essential" values such as aesthetics and believe that we can rely on technology to meet all our needs. Others believe that nature provides essential values, serving aesthetic and functional needs, which are biological necessities (Gold, 1977a). The dichotomy of nature apart from human activity is widened by the technological character of today's society (Wohwill, 1983). We may value nature as a refreshing and renewable resource, but we have an ethic of exploitation, whereby natural resources are viewed in terms of profits. At times there seems to be a token use of nature to ease our guilt about the destruction of the natural environment (Gold, 1977a). Yet, there are those who believe that we should conserve nature because we cannot

¹⁰ See the writings of William Bartram, Henry Thoreau, John Muir, Ralph Waldo Emerson, Rachel Carson, and Aldo Leopold for a start.

¹¹ Note the Sierra Club, Greenpeace, the Wilderness Society, Defenders of Wildlife, the Nature Conservancy, and the Audubon Society, to name only a few of many such groups.

survive without it and those who want to preserve nature not because of any ecological, economical, recreational, or amenity value of nature, but rather based on the intrinsic value of nature (Westhoff, 1983).

How People Respond to Vegetation

As discussed earlier, some of the primitive responses to vegetation remain as essential parts of human nature. These responses are not always apparent since they are masked by our artificial environments and cultural adaptations to the modern world. Nevertheless, various analyses of the way people respond to vegetation provide frameworks for looking at these responses.

Charles Lewis (1977) begins to explore how people see themselves in relation to vegetation by identifying three levels of distance between people and plants. These are based on the amount of human involvement with the plants—a distant view with little personal investment, an intermediate view where people respond to plants with meanings and values yet still remain separate, and close view where people become intimately involved as in gardening, and are no longer merely observers. Similarly, Marion Hall (1981) defines three ways of thinking about trees, which also applies to plants in general. People may think of plants simply as inanimate objects. Using plants as ornaments falls under this category, and it makes little difference whether the plants are plastic or real. Plants may also be thought of as living objects while still being viewed as separate from the

ecosystem. Although appreciated for their qualities as living organisms, they remain objects, e.g., for collecting, for beautification, or to increase real estate values. Finally, people may perceive plants as part of a natural system, and recognize their value as part of a living process. Joachim Wohlwill (1983) found that at the age of six, children already differentiate between the natural and the built domains. He thus argues that nature is a "natural" category to which people respond in a unique way and he defines responses to the environment in terms of perception, emotion, and overt behavior. His is a very different approach from that of Lewis and Hall in that Wohlwill views vegetation strictly as an outside stimulus to which people respond.

We thus need to integrate the ideas of different functional levels of interactions between plants and people, the different ways in which people view plants in their world order, and the ways in which vegetation functions to stimulate perceptions, emotions, and behavior. The issue becomes a very complicated one, but these are the things to keep in mind when looking at people's interactions with vegetation.

Certain outdoor scenes are more appealing than others and some researchers are trying to discover and understand people's preferences. When Kaplan, Kaplan, and Wendt (1972) studied preferences for the physical environment, they discovered that people tend to categorize scenes as either nature or urban scenes, as Wohlwill (1983) later found with children, and that they greatly

preferred the nature category.¹² Ulrich (1983) found that the natural category included not only untouched natural environments, but also human-influenced settings such as parks and agricultural land. The important factors are the presence of vegetation and the absence of built features. Water is also an extremely important feature that causes the categorization of a scene as natural and elicits high preference ratings. In addition, Carls (1974) found that preferences for outdoor recreational landscapes decline when there are large numbers of people present and high levels of development. In his analysis of several studies indicating aesthetic preferences for natural environments, Ulrich (1983) notes that the results are consistent and do not vary based on culture, income level, or rural versus urban background.

Beyond preferences, plants may also affect emotions and behavior. Everett Conklin (1972) claimed indoor plants caused improved morale and reduced absenteeism. The John Deere Corporation claims that employees in close proximity to plants are more productive (Sommers, 1984b). Flowering plants in the dining room of a psychiatric hospital (Talbot et al., 1976) caused increases in vocalization, time spent in the dining room, and the amount of food eaten. There is thus an indication that the presence of plants affects human functioning.

Studies of brain waves of subjects viewing vegetation and urban scenes

¹²These differences were shown not to be related to differences in complexity between the urban and nature scenes, another factor that affects preference.

(Ulrich, 1981) show that the subjects are more wakefully relaxed while viewing vegetation as opposed to urban scenes. Additionally, people benefit most from viewing nature scenes when they are under stress. A later study of surgery patients (Ulrich, 1984) shows that window views of vegetation, as opposed to views of brick walls, result in shorter hospital stays and fewer requests for pain killers, and indoors plants have been shown to have a significant positive effect upon the perceived quality of the environment (Laviana, 1982).

Research on human response to vegetation outdoors has focused on parks and trees in the environment. Users of a residential park at the University of Delaware identified benefits of direct contact with nature and the aesthetic benefit of the scenery, trees, and grass. Some of the passive nature benefits were greater for those whose rooms had views of the park, but merely awareness of the park's presence, even for those who did not use it, provided a psychological benefit (Ulrich and Addoms, 1981). Shoppers with a choice of a shorter less scenic route and a longer more scenic route frequently base their decision solely on scenic quality (Ulrich, 1974). The most important advantage of the more scenic parkway was its visual environment, and vegetation plays an important role in that environmental quality.

Interviews of inner city residents (Getz et al., 1982) showed that, of the municipal services offered residents, parks and street trees ranked second behind educational services, and the people thought more money should be spent on trees.

People prefer those urban settings that contain trees (Kalmbach and Kielbaso, 1979) and find those areas more interesting (Getz et al., 1982). Trees in urban settings influence where people choose to live (Getz et al., 1982) and increase the use of urban parks and the satisfaction with residential neighborhoods (Gold, 1977a).

These studies suggest that people do respond to plants in a unique way. Vegetation is important for environmental quality both indoors and outdoors and the effects of the presence of plants go beyond aesthetics. Both nature and vegetation have historically and prehistorically been a focus of human attention and strong cultural traditions involving attitudes towards nature have emerged. As agriculture was developed, new lands were explored, and gardens were planted, people's curiosity and fascination with plants grew. Today that interest continues as people study and grow plants and cultivate more gardens. That active interaction between people and plants is an important area needing further exploration.

Instructional Objectives

After completing this section students should be able to:

1. List and explain reasons why people appear to need nature and plants.
2. Identify and describe some of the things nature provides which may be important for human functioning.
3. Identify and contrast attributes of the built and natural domains, and state how the two differ as related to human interaction with that environment.
4. Identify and give examples of different views and attitudes towards nature through history, and ways in which people see themselves in relation to the natural system.
5. Identify the qualities for which nature has been valued and explain the opposing views of why nature is important and should be preserved.
6. Identify some of the different ways people think about plants.
7. Identify and analyze ways in which people respond to and benefit from the passive presence of plants in their indoor and outdoor environments.

Instructional Resources

Film

The Eternal Forest, USDA, 1970, 21 minutes, Color

Deals with the subject of people in the environment. Describes efforts to restore nature's balance and protect the forest resources.

Available from:

Audio-Visual Resource Center
8 Research Park
Cornell University
Ithaca, NY 14850

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CHAPTER 2

INTERACTIONS BETWEEN PLANTS AND PEOPLE

Chapter one introduced concepts and theories of how people think and feel about nature and vegetation. Plants were shown to be a stimulus that elicits distinct attitudes and responses that are also influenced by our biological and cultural development. The next exploration turns towards the specific qualities of plants that evoke these responses and the potential impact of active involvement with plants.

Characteristics of Plants

The ways in which people view plants are based upon plant characteristics in combination with the personal meanings people associate with plants. Although human perceptions vary, the intrinsic nature of plants, can be explored more objectively.

Most important, plants are living organisms that exhibit the natural processes of growth, development, and change, and may elicit a sense of wonder about these ongoing processes that a plastic plant simply cannot evoke. Thus plants represent, in microcosm, the larger natural world.

All our senses are stimulated by the plant kingdom. Leaves, flowers, fruit, and bark display assorted combinations of color, texture, form, and movement, which change dynamically through the seasons. Alone, or in combination with other environmental features, plants affect the visual landscape, whether that is through the beauty of a dazzling flower, the vista of a designed landscape, or simply the presence of green foliage in a forest or lawn. Plants provide a variety of tactile sensations as well, such as velvety leaves, coarse bark, fluffy flowers, or sharp spines. Envision the allure of a field of soft grass or the glee that children find in running through a pile of fallen autumn leaves. Sounds are created when rustling leaves are blown by the wind or the children run through the leaves. Fragrances are produced in a wide range of pleasing and offensive aromas. Bouquets of fresh flowers and herbs soothe our nostrils,¹³ countless perfumes are made to preserve those fragrances, and the wide range of flavors available from fruit, herbs, and vegetables stimulate our taste buds. While similar individual experiences may be derived from objects other than plants, the experience as a whole becomes one that is unique.

Plants have an important position in our biotic environment. They serve ecological functions in building and holding soil, modifying air moisture, temperature, and oxygen concentration, and in being a part of the food chain. Additionally, plants have valuable roles in our built environments (Robinette,

¹³ Aroma therapy is a developing field utilizing olfactory responses.

1972). Architecturally they articulate space, create privacy, screen or frame views, and create a human scale, and plants are used to create entire environments. Their engineering value lies in controlling glare, traffic, noise, air pollution, erosion, and climate, e.g., they provide shade, windbreaks, insulation, and shelter from precipitation. Plants are valued aesthetically for their beauty as focal points and backdrops, and as agents to unify unrelated elements and ameliorate the harshness of built environments. They add diversity and form to a landscape, create shadow patterns, and attract birds and other mammals. In sufficient number, plants create a 'natural' ambience (Appleyard, 1978).

In the intellectual realm, plants are a topic for study, which provides challenges to the scholar as well as the amateur learning wildflower names. Plants are frequently symbols; flowers, fruit, and greens being associated with particular seasons, holidays, or rituals. Plants are used to create a recreational environment, in which children may climb, hide, or create fantasies while adults play golf, tourists visit a garden, or home gardeners compete with their neighbors for the earliest tomatoes. Additionally, plants have an economic value as sources of food, fiber, medicine, and ornament.

A garden, or an assemblage of plants, can be an experience with symbolic meaning for people. To many, gardens suggest images of the Creation, paradise, or perfection (Fairbrother, 1956). Through the gathering together of many plants, their individual values are concentrated and the garden as a whole comes to signify

nature, life, and beauty. Gardens display order and are dynamic, changing daily, seasonally, and yearly. Diverse vegetation facilitates a variety of aesthetic experiences. In urban areas, parks and gardens are some of the few remaining places where people are able to experience nature (Ulrich, 1976). A study of park usage showed that adults of all social classes, educational backgrounds, ages, and residential patterns visit parks (Cheek, 1972), and they are often appreciated simply because they are there, even when not being actively used (Kaplan, 1982; Ulrich and Addoms, 1981).

Obviously plants and gardens have many valuable attributes all of which will not play a role in every interaction. However, it is important to note that these interactions are multi-faceted and are not all reducible to a single explanation. There are many factors at work that will vary with the person as much as with the plant. While the fragrance of a rose may evoke pleasant childhood memories for one person, the thorns on the same rose may induce anger in another person who does not even notice its beauty.

Characteristics of Gardening

Gardening refers here to any act of growing plants. This is an involvement with plants requiring action by the gardener. Gardens may include a house plant on the windowsill, an acre vegetable plot, a residential landscape, or a row of urban street trees. The qualities of the plants themselves that stimulate interaction and response have been discussed, but what is it about the act of growing a plant that elicits feeling?

Gardening affords much more intimate contact with plants than one has as a passive observer. Growing plants is a physical activity with sensory delights and a participatory activity with opportunity for involvement. Gardening provides proof of the ability to change one's physical surroundings. It requires observations of the plants and environmental conditions and responses to those observations, and it is a process that extends over a period of time. In addition, gardening provides tangible end products that are appreciated and enjoyed. Gardening may appeal to a diverse audience and can take place at various levels of activity. There is anticipation and everyone can achieve a measure of success.

Designing a garden is an opportunity for creative expression. Intellectually, there is challenge to figure out how to grow the best possible plants, and there are always new challenges and rewards. Thus gardening both demands and provides knowledge. Plants have certain requirements that must be met. In a

garden, as opposed to the wilderness, plants are tended by the gardener, who affects their growth along with other factors such as climate, soil, etc., and ensures their survival. Plants respond to proper care by growing, flowering, and fruiting. Rachel Kaplan (1973) notes that gardening is not a chance or casual experience; it is a continuing activity that requires some commitment. A principal value of gardening that she identified was one of fascination. The informational processes that gardening utilizes (recognition, prediction, control, and evaluation) and the fact that it is a nature based activity, are properties Kaplan identifies as fascination enhancing, and these are concentrated and intensified in gardening activity. This response is an involuntary one, which is effortless and provides a rest from daily stresses.

While gardening is an activity focusing on plants, it may also function as a catalyst to bring about benefits that are not directly related to the plants themselves. Horticultural activity often brings with it physical exercise and exposure to the outdoors, and frequently it is a social activity. Whether people are gardening together in a community garden, sharing seeds, harvest, or gardening tips, or participating in a garden club or plant society, there are many opportunities for interaction with other people. The garden itself may become the setting for other social events. For other people, however, it may be a solitary activity that serves as an escape from social contact and obligations. For everyone gardening may provide a break from daily routines.

The Potential Impact of Interaction with Plants

Becoming involved in horticulture has an effect on people's lives. This impact on human life falls into the realm of the aesthetic, economic, psychological, social, spiritual, and intellectual. Improvements in one's physical surroundings become visible and tangible. People may begin to think differently about themselves, their community, and the world around them; and they may feel better physiologically and psychologically. The community as a whole may benefit. The influences may not be so apparent for those whose lives have always included horticulture, but plants and gardening contribute to establishing a certain quality of life and a level of satisfaction.

A. Aesthetic and economic impact

Most obvious and previously discussed in chapter one, plants play a role in environmental aesthetics. Through gardening, people can become involved in the quality of their surroundings. By growing plants they create beauty in both the indoor and outdoor landscape. Gardening extends personal living space beyond one's interior walls to the outdoors, and allows one to bring the natural world inside. In an analysis of front yards, J. B. Jackson (1982) concluded that beyond the social purposes, people mow, water and prune to satisfy a love of beauty and reproduce a familiar setting. Places with more vegetation present are frequently perceived as more interesting (Gold, 1977b) and gardening is a source of increased sensory diversity, novelty, change, motion, and complexity, all of which function to

alleviate monotony (Brush, 1976). Thus, people become active participants in the aesthetics of their surroundings and become more conscious of aesthetic considerations.

Horticulture also provides economic benefits. Although property values are influenced by a variety of factors, land with vegetation and property in close proximity to well-landscaped parks command higher prices (Gold, 1977b). Trees may contribute as much as 27% to appraised land values depending upon number and size (Payne, 1973), and this is a factor that people can control. People are attracted to and less likely to leave attractively landscaped communities, resulting in greater neighborhood stability (Gold, 1977b). Gardens and proper landscaping produce direct economic gains as well. In 1983 the vegetable gardens of 35 million households produced 14 billion dollars worth of food, an average yield of \$400 per garden (Butterfield, 1984). Landscape design may effectively conserve energy and reduce costs for heating and air conditioning up to 30% (Moffat and Schiler, 1981).

B. Psychological and social impact

The most important satisfaction that people perceive they derive from gardening is a feeling of peacefulness and tranquility (Kaplan, 1983). Other psychological benefits result from gardening as well. Horticultural knowledge and experience has been shown to correlate negatively with anxiety, depression, and hostility, indicating a possible linkage between mental well-being and horticultural

activity (Myer, 1983).

When gardening, people achieve a sense of mastery over their personal environment. They are motivated to further improve their living spaces, as evidenced by street cleaning and house painting projects initiated after successful gardening projects (Lewis, 1972). When growing, protecting, and enjoying a garden becomes a basis for people coming together and working towards a common goal, a sense of community develops. Urban gardening projects induce pride in neighborhoods and help reduce vandalism (Lewis, 1972). The presense of trees, landscaping, and a place to grow flowers and vegetables are strongly related to neighborhood satisfaction (Kaplan, 1983). Landscaping encourages the use of neighborhood parks, which often leads to reduced crime (Gold, 1977a).

Gardening increases self-esteem, pride, and self-confidence by inducing a sense of responsibility and providing continued evidence of success. The plants' dependency upon the gardener induces a feeling of being needed that engenders a sense of nurturing. Gardening provides an escape from adverse conditions at home or work. A garden can be a place to cope with stress (Kaplan, 1983) where one can feel free, independent, and more in control (Driver et al., 1978). Gardens and plants may evoke memories of other times, places and feelings. They have the ability to provide images of shelter, permanence, and privacy, and to inspire feelings of sadness, pensiveness, happiness, or exuberance (Robinette, 1972), although experiences will be different for each individual. Gardening can induce a

feeling of relatedness to nature and may inspire a sense of stewardship of the environment. Urban tree planting programs have been shown to create a sense of social identity in public spaces (Ames, 1980). People individualize the landscape with their gardens, as with front yards that indicate the taste and social standing of the owners (Jackson, 1982; Watts, 1975). Self-image becomes tied to the garden and gardens are used as cultural symbols.

C. Intellectual and spiritual impact

The field of horticulture offers the opportunity to attain a variety of new skills and to understand new concepts. Plants serve as a medium for experimentation and may thus stimulate curiosity. A study of a plant lending library where students checked out plants, but received no formal instruction, reported significant incidental learning (Odom, 1980). Gardening demands awareness of the environment, which may result in increased sensitivity and skills of observation (Olszowy, 1978). Interacting with plants may promote an understanding of natural processes and perhaps reestablishes a feeling of continuity with nature that Edith Cobb (1959) identified as an experience belonging only to a brief period of childhood.

The joy that one may find in observing the sprouting of a seed or the opening of a bud is not easily defined. Charles Lewis (1973) perceives in gardening the potential for personal spiritual awakening. There are many who link the human

spirit with the gardening process. Through history there were times when gardening was considered a virtuous activity that would improve one's morals and remove temptations of vice (Fairbrother, 1959). In considering the mental, moral, and religious aspects of human existence there is no way to prove scientifically any role that plants play. Stephen Hamblin (1923) defined gardening as the desire to be a co-worker with nature in creating order and beauty, and saw much of gardening as symbolic of the Creation itself. The Findhorn Community in Scotland took a singular approach to gardening. They believed they were cooperating with the inner spirits of the plants and saw themselves joining together with these devas and nature spirits. Working hand-in-hand with the spiritual aspects of the nature kingdom, they found harmony and the experience of re-creating the world (Findhorn, 1975).

Alice Walker (1983) identifies gardening as one of the few creative expressions that were available to black women in America. In describing that unconscious spirituality she writes about her mother in *In Search of our Mothers' Gardens* (p. 241):

It is only when my mother is working in her flowers that she is radiant, almost to the point of being invisible—except as Creator: hand and eye. She is involved in work her soul must have. Ordering the universe in the image of her personal conception of Beauty.

Thus, while certain benefits of horticultural activities are tangible and measurable, some of the ways in which gardening affects people is not so easily

documented. Yet, regardless of the reasons why people have gotten their hands into the soil and although it may not be a part of every person's experience, it cannot be denied that plants and gardening exert a powerful influence over human life. An exploration of some of the gardens created through history brings this further into focus.

Instructional Objectives

After completing this section students should be able to:

1. List intrinsic qualities of plants and analyze how these are of significance to people.
2. Identify and evaluate how plants function to alter the physical environment.
3. Describe gardening within the framework of it being a process.
4. Discuss symbolic meanings people derive from gardening.
5. Identify and analyze the potential of active horticultural involvement to affect individuals and communities in terms of:
 - a. Aesthetic considerations
 - b. Economic factors
 - c. Psychological and physiological well-being
 - d. Intellectual stimulation and achievement
 - e. Social interaction
 - f. Spiritual growth

Instructional Resources

Films

String Bean, McGraw, 1964, 17 minutes, Black and White

A haunting film of an old woman in Paris who cultivates a potted string bean plant with tender devotion and love. Eventually she decides her friend would be better off in the Luxembourg Gardens, where she surreptitiously plants it. The fate of the plant and the faith and optimism of its guardian form the narrative thread of the film.

Ruth Stout's Garden, Arther Mokin Productions, 23 Minutes, Color

A journey into the life of a charming nonagenarian who has developed a "no work" system of gardening.

Growing, Growing, 1976, 11 minutes, Color

A short film designed for educators working with children. The free form of this impressionistic film is rich in images and sounds, and displays the joy and wonder that children find in growing plants.

Above films available from:

University of Nebraska
Department of Horticulture
377 Plant Sciences, East Campus
Lincoln, NB 68583-0724

How Long is Always, A Story of Trees, Pennsylvania Horticultural Society, 1975, 28 minutes, Color

An exciting documentary on the vital role of trees in the lives of city people. It covers a wide range of topics related to trees and their function. Award of Excellence, American Horticultural Film Society, 1975.

Available from:

Films Incorporated
440 Park Ave. South
New York, NY 10016
800-223-6246 or 212-889-7910

Gardening with Color, Ortho Films, 18 minutes, Color

This films explores responses to color and the use of color in garden design.

Available from:

Chevron Chemical Company
Ortho Consumer Affairs—Ortho Films
P. O. Box 7144
San Francisco, CA 94120-7144

Videotapes

From These Seeds, PBS, 1979

Charles Lewis narrates this story of the profound influences gardening has on people's lives. Includes shots of public housing gardens and horticultural therapy at work.

Available from:

National Council for Therapy and Rehabilitation through
Horticulture

9041 Comprint Ct. Suite 103

Gaithersburg, MD 20877

Suggested Readings

Driver, Beverly, David Rosenthal and George Peterson. Social benefits of urban forests and related green spaces in cities. In *Proceedings of the National Urban Forestry Conference*. Syracuse, NY: College of Environmental Science and Forestry, 1978. pp. 98-114.

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CHAPTER 3

ROLES OF PLANTS AND GARDENS IN HISTORY

As cultures rise and fall, attitudes towards gardens and gardening change. Yet, gardens, in one form or another, have managed to persist, maintained by human desires and energies. The implication is that they serve some basic or important functions in people's lives. Today's way of life is distinct from that of ancient times, the Middle Ages, or even a few decades ago, and our gardens have taken on different forms. It seems plausible that gardens should have a different place in our lives today, yet we still have much to learn from looking at history, and perhaps we have more in common with the past than we might expect.

Many cultures have invested plants and flowers with religious significance. Those beliefs, handed down from generation to generation, have been transformed and today many of those old sacred plants are emblems and symbols of religious celebrations (Lehner, 1960). While early gardens were strictly utilitarian, with time people learned to use flowers and trees as aesthetic elements in the landscape. To some the landscape creation is a work of art, while for others gardens serve as vehicles for displaying affluence and as settings for castles, mansions, or public buildings. During certain periods, formal landscape creations exhibited very rigid forms, while by contrast the naturalistic periods attempted a harmonious blending

with nature. Some of the many functions gardens and landscapes serve are as places in which to live and entertain, scenes for viewing, and places for privacy and escape. The garden enclosure has been interpreted as an expression of a fear of violence, a longing for peace, and a struggle for survival that kept people occupied on home territory and not looking beyond that wall (Fairbrother, 1956). Consciously or unconsciously, garden styles are statements of ideology and philosophy of life, ideals for which we are striving. Derek Clifford (1962) calls the garden an "idealized view of the world."

Several authors have done an excellent job of recounting the history of garden and landscape design.¹⁴ Although there is no need to repeat the details here, a few descriptions of how some gardens developed as part of people's lives are in order. While no attempt is being made to be complete, emphasis is being placed on a human perspective—some of the functions gardens served, reasons people designed gardens as they did, social influences, and the degree to which the gardens reflect attitudes and culture.¹⁵ To a certain extent, our gardens also display and reveal knowledge of the past and earlier traditions. Other important influences on the garden are physical factors such as climate, topography, and the accessibility of

¹⁴See Berrall, 1966; Clifford, 1966; Gothein, 1928; Hyams, 1971; King, 1979; Jellicoe, 1975; Newton, 1971; Prest, 1981; Thacker, 1979; and Wright, 1934.

¹⁵An important note must be made, however, concerning the historic and prehistoric record that is available. That record may present a biased picture, most commonly based on what the wealthier classes left behind. Indeed, they had more to leave as well as the means to create lasting evidence. Thus, much of garden history may not adequately represent the common gardener.

water, as well as the availability of human labor and financial resources. Small utilitarian gardens always continue, but once the bare necessities of life are met, the garden becomes an arena for creative expression.

Beginnings

The Garden of Eden is the archetypal garden and paradise. The image is one of a park-like place with ornamental as well as fruit-bearing trees together with rivers and animals in a peaceful setting. This milieu of complete happiness implies that the garden is a "natural" home for humans. People have been fascinated with this image, which has been a source of inspiration for painters, poets, and philosophers.¹⁶ That idealized image of paradise has had a profound influence on garden history.

This first "garden" provided a setting but was not a human creation. Plants were an essential part of the physical environment and provided food and shelter but exactly when humans first developed an awareness of plants cannot be determined. Claims have been made that cave art and burials of the Paleolithic era (some 60,000 years ago) show such consciousness (Janick, 1979).¹⁷ This is still a step away from actively cultivating plants, and the archeological record provides no

¹⁶ See *The Enchanted Garden, Images of Delight* by Bryan Holme.

¹⁷ Cave art depictions, however, were mostly of animals. King (1979) suggests that perhaps this is because the pastoralists did not dwell in caves and thus their artwork was more ephemeral.

evidence of active manipulation of plants by early humans. It took thousands of years for that step to be taken.

The first horticultural endeavors are attributed to the Neolithic period at least 7-8,000 years ago (Hyams, 1971). The development of agriculture brought radical change to the nomadic way of life. The conscious cultivation of plants meant settling in an area and in time private domains were established (Levine, 1975). This was the critical element for the emergence of the garden as a distinct form. Edible plants were the first to be grown, followed later by medicinal herbs. Providing food for survival and remedies for disease, the first gardens were gardens of necessity.

Roots and seed were brought from the wild into a tamed area. It seems likely that women were these first gardeners (Hyams, 1971; Wright, 1934). Transferring food plants to the garden assured a food supply and allowed the planning for tomorrow. Cultivating plants thus established in humans a consciousness of the land and of a time frame beyond today. Agricultural products became a basis for commerce, people began introducing plants from other areas, and took plants with them in their migrations. As agriculture developed it became, along with hunting and the domestication of animals, a reason for the possession of land. Adequate food brought increases in population and wars were fought to protect the possession of fertile ground. In this way the cultivation of plants influenced the development of civilization (Levine, 1975).

Somewhere in time, after people's basic needs were met, they turned to gardening for pleasure. Where and when this occurred is open to debate, but there is evidence of strictly ornamental gardens at least as far back as the 3rd century B.C. in China, Mesopotamia, and Egypt. More often, however, utilitarian and ornamental plants were grown side by side and the distinction between the two was not made so clearly. Ronald King (1979) suggests that the cultivation of plants for ornament first arose out of religious practices, while Edward Hyams (1971) postulates that the first ornamentals were derived from medicinal plants. In either case, as civilizations prospered, gardening became an important creative outlet. Different cultures created their own unique styles and traditions of gardening.

Gardens of the Orient

In the Orient, the development of a gardening tradition and style is closely associated with religion, a feeling for nature, and aesthetic sensibilities. The natural landscape was one that inspired appreciation and representation in the garden, in contrast to that of Egypt, Asia Minor, and Persia, where gardens were created for refuge from an otherwise harsh physical landscape. The Eastern gardens also reflect some of the pressures of population and limited space. Their gardening tradition, distinct and totally independent from that in Europe and America, has evolved and been refined over a long period of time, and has changed only slowly.

The Chinese constructed their lives around a philosophy of inner harmony

and sensitivity to nature and the landscape. Taoism, based on an ideal of the unity of creation, advocated a life of complete simplicity, noninterference with the course of nature, and a natural integration into the rhythms of life. Later, Buddhism contributed to the increasing awareness of nature and enriched the symbolic content of the garden. Humans were seen as insignificant in the scheme of nature. Gardening was an art of reverence and delight, as it still is today, concerned with order and harmony (Thacker, 1979). The garden displayed, in symbolic form, the essence of nature.

The visual enclosures as seen in other styles of gardening were de-emphasized; the spirit was to roam free. The design provided a series of views, so that the garden reveals itself only a little at a time. Symbolism and iconography influenced the choice of each garden element and the arrangement of all the elements, with mountains and water as basic components. Gardens were planned for each mood and occasion, for quiet meditation and conversation and often for viewing at night. Landscape painting and poetry were closely tied to gardening. It is sometimes difficult to distinguish between the garden and the natural landscape.

The art of gardening reached the Japanese by way of the Chinese, but they developed it according to their own philosophy and religion, and took the garden far into the realm of the abstract. Zen Buddhism, introduced in the 13th century, stressed achieving enlightenment through meditation and contemplation of the landscape. A broader view of nature allowed greater abstraction that led to

the creation of the dry garden, composed of sand and stone to the exclusion of plants, designed to induce philosophical thoughts. Japanese gardens were more often settings for religious practices than were Chinese gardens, as is the case in the distinctive form of the tea garden.

The Japanese love for beauty is rooted in the natural countryside, and the idea of the beautiful as well as its execution in the garden is very precise. Design was influenced by the aesthetic principles including the use of space and asymmetry as structural elements. Plants and features were situated to maximize the illusion of depth. Scrupulous attention was given to strict rules of unity, balance, congruity, and proportion to produce a feeling of harmony and repose that would continue through the years as well as all the seasons. A distinguishing feature of Japanese gardens, especially in contrast to Western gardens, is that they are designed as viewing gardens (Eliovson, 1982).

Ancient and Classical Gardens

In ancient Egypt temple gardens were the first centers of horticultural activity and later the estate gardens of the nobility served as the sites for experimentation, garden design, and the introduction of exotic plants. These gardens were formal, rectilinear, with trees, container plants, pools, and flowers, and were designed to be lived in, functioning as outdoor living rooms. Flowers were an important part of daily life and fresh cut flowers adorned the indoors.

Architecture imitated floral forms and the decorative arts introduced flower forms into interior design. Gardening was not, however, restricted to the upper class. The less affluent had gardens as well, although on a much smaller scale. Small gardens surrounded private houses. There were gardens around gravesites, and the numerous tomb paintings of gardens suggest that the soul was to enjoy the gardens after death. It has also been postulated that the enclosed garden originated primarily to provide privacy for the women in the household (Carpenter et al., 1975).

To the Babylonians and Assyrians we can trace some of the origins of the public park in the wooded hunting preserves of the aristocracy, which served as recreational areas (although not open to the general population). Their gardens functioned as outdoor dining areas and women especially took part in gardening activity. The most famous gardens of this culture were the Hanging Gardens of Babylon, said to have been created by Nebuchadnezzar for his wife who was homesick for her native hills. They developed extensive irrigation systems and terraces in their large and complex formal gardens, exhibiting a sophisticated technology required for building the supporting structures.

It is from the Persians that we inherit the word paradise, which referred to their walled gardens. The climate of Persia being dry and hot and vegetation sparse, it is easy to believe that they created their gardens as a respite from the harsh desert. The enclosed fertile area was abundant with flowers and fruit. Shade

and water provided a cool refuge from drought and heat. The flowing waters were an important symbolic element, representing the four rivers of the Garden of Eden (Thacker, 1979). This design was transmitted throughout the Islamic world, to the Turkish gardens, the Moorish gardens, and the Mughal gardens, where climatic conditions favored a similar layout. The Turkish gardens, especially designed for viewing and contemplation rather than for living in, were often situated to provide a view of the water. In all the Persian influenced gardens one can see the elements of enclosure, the fourfold rectangular design, flowers, trees, fruit, and water. The Persian garden carpets are a testament to that traditional garden.

The early Greeks produced simple kitchen gardens, orchards, and vineyards. In celebration of the arrival of spring and in tribute to the gods, pots of soil were planted with herbs, and placed on the rooftops around a statue of Adonis, the embodiment of the plant world (Wright, 1934). Thus, the container culture of plants and roof gardening, later strictly ornamental, have their origins in religious ceremony. The public park had religious origins also, in the sacred grove, but in contrast to the Persian park¹⁸ of the wealthy, the Greek public park was accessible to the people. The Greeks were a gregarious culture who did not retreat into private gardens as much. Public schools and gymnasia were located in the park. Plato believed an ordered landscape to be a sympathetic setting for learning (Jellicoe, 1975), and parks became the meeting places for philosophers and their

¹⁸It is important to note that the word park as used here is not synonymous with today's public park. The meaning of that word has changed over the course of history.

students, e.g., the gardens of Aristotle, Theophrastus, and Epicurus. Serving as a place of assembly, the parks were always closely associated with buildings. They were a part of civic design and not created simply for their own sake.

It was when Alexander conquered Persia and Egypt in the fourth century B.C. that the Greeks were exposed to another realm of gardening and expanded their use of flowers and gardens. The Greek house was built around a court planted with trees and flowers and plants in pots, a place that became the most important living space. Wright (1934) declares that their taste for country living and the enjoyment of tranquility and conversation in a quiet shady garden was the most pronounced garden heritage that Greece passed on to the Roman empire.

The Romans, thriving until their fall in the fifth century, mastered and refined the gardening skill and knowledge of the Greeks and brought the art of gardening in the ancient world to a peak. John Wott (1982) views the Romans as the first true ornamental horticulturists as they planted for beauty alone and kept their food gardens separate. The imposing villa-gardens that they created were designed as pleasure gardens, places of luxury. Prosperity and slave labor supported the building of gardens on a tremendous scale, with elaborate water-works, terraces, and statuary. The art of topiary was developed, flowers and plants adorned every wealthy house, roofs were converted into gardens, and raised planters were designed. Greenhouses provided artificial environments for exotic plants requiring protection and for forcing plants into bloom out of season (Hix,

1974). Gardens encroached upon agricultural land and advanced into the city. The gardens of the not-so-wealthy continued in the tradition of the courtyard, integrating house and garden as architectural elements (Hyams, 1971). In Pompeii the interpenetration of house and garden expanded with the use of murals and indoor plants.

European Gardens

That the art of gardening virtually disappeared with the demise of the Roman empire and the advent of the "Dark Ages" attests to ornamental gardens as a product of leisure. During the unsettled times and spirit of hopelessness of the medieval world, people were much more concerned with survival than with the fine arts of living, and had little time and energy to spare. Towns were walled in for protection from the danger lurking beyond, and gardens became separate from living spaces. It was not a time that society produced gardens on a large scale, but the horticultural arts did prosper in the cloister garden and the small enclosed castle garden. Gardens were a necessity with vegetables and medicinal crops being primary. Yet in the monasteries, flowers were grown and decorated the altars and later in the Middle Ages a garden was often the pride of a monastic community (Wright, 1934). The monastic gardens were models of paradise, enveloped in allegory, each flower representing some aspect of the Christian faith. Prest (1981) suggests the garden was a "surrogate bible." The medieval garden served as a sanctuary from evil forces, and the castle gardens were also used for outdoor feasts,

games, parties and romance (Wott, 1982). Nowhere else was it safe to be outside.

As Europe gradually emerged into a period of revived culture and intellectual activity, universities were established and the spirit of scientific inquiry flourished. Gardening as a fine art reemerged and came to a climax during the Renaissance. Botanic gardens sprung up following the discovery of the New World and served an encyclopedic function. Plants were gathered from all over the world in an attempt for the garden to be complete, and each new plant was awaited with expectation. At the botanic garden in Padua, established in 1545, the layout was square and divided into four parts representing the world. This botanic garden was an expression of optimism, an attempt to recover knowledge that would be revealed through each plant. It was also a medicinal garden and, based on the theory of signatures, a complete collection of plants would supply cures for all diseases. Scientific investigation and the development of modern medicine continued to rely on plants as medicinals.

The Renaissance spirit of artistic endeavor combined with expanded trade and prosperity, produced a period of extreme grandeur in the garden, which also became a competitive arena in which to strive for excellence. Variety was an ideal and beauty was seen in an ordered, perfected nature that stood in contrast to the wilderness. The Italian Renaissance garden was a visual monument, a blend of architecture, horticulture, sculpture, and water. In other European countries, influenced by the formal and imposing nature of these creations, the gardening

tradition developed further. Nan Fairbrother (1956) interprets the formal French Baroque garden, epitomized by Le Notre's creation at Versailles, as a proclamation of a society confident of its intellectual force and power to dominate. The garden was designed to create spectacle and grandeur on a large scale, as a glorification of power. Elaborate water features and plants sculpted into architectural forms became strong components of the garden. These gardens were backgrounds for lives of a luxurious culture, stages for entertainment. An aesthetic taste was imposed upon nature as a show of human will and strength, quite a contrast in attitude to the Oriental gardeners.

A rebellion against rigid formality, artificiality, and repetitive geometry in the garden produced a counter movement. Derek Clifford (1963) attributes the 18th century English landscape revolution to boredom with the regular patterns, a fondness for country walks, and a spirit of nationalism requiring the emergence of a distinct English style, as well as economic pressures to scale down detail and remove expensive frills. There was a rediscovery of the beauty and perfection in nature, also inspired by the Chinese gardening style, although in contrast to the Chinese the attempt was to reproduce nature. The naturalistic landscape removed the visible boundaries so that the garden appears as part of the larger world of nature. Lancelot "Capability" Brown advocated a simplified landscape of poetic inspiration. One interpretation of this development of the landscape garden (Fairbrother, 1956) is that it stemmed from a weariness with order and formality and that as people acquired material comforts they began to seek a return to nature

and the simple life (a sentiment we see again in the back to nature movement of the 1960's in America).

Interest grew in the picturesque and the romantic and the improvement of the natural landscape became an art form. The Victorian era, a period of industrialization and the rise of a middle class, ushered in an intense interest in the horticultural arts. Flowers were brought back into the garden in large numbers and many exotics were introduced from the Orient, America, and Africa. Elaborate conservatories and outdoor carpet beds were used to display these treasures. Gardening became a healthy hobby, and women were free to get down on their hands and knees and dig in the soil. The fresh air, exercise, and fragrances of gardening were to be enjoyed by everyone as a romantic idealism about nature swept through the garden.

American Gardens

To the first American settlers, well-tended gardens and fields were necessary for survival. Through taming the wild and cultivating the land, they acquired title to it. America promised plentifulness, and baskets of flowers and fruit were symbolic of that abundance (Tice, 1984). Thus, the early horticultural efforts were restricted to the utilitarian kitchen garden and mostly remained so until the 19th century. When settlers moved west to the Plains, they took trees with them and planted them around their houses to provide shade and protection

from the elements and as reminders of their homes in the east. As people achieved some stability and leisure time as well as the financial resources, ornamental gardens did develop. The wealthy, of course, had their gardens, and in the South the available slave labor enabled them to produce elaborate gardens in which they prided themselves. Much garden art and inspiration was derived from the English homeland. The garden also served as a symbolic sanctuary from the savage and unknown forces of the wilderness, which they were attempting to conquer. It was an ordered system where nature was controllable (Nash, 1967). As a result, many of the gardens that developed were formal in nature, lagging behind the European movement towards the naturalistic.

The industrial revolution brought dramatic change as people migrated to the cities and left rural areas behind. The agrarian ideal and a belief in the virtue of working the earth, however, remained deeply rooted values in American society. Popular literature advocated horticulture as a healthful activity, especially in the stressful urban setting. Those who could afford it owned and cultivated a small plot of land (Johnson, 1985). Gardens were often set up by factories, cities, or neighborhoods (see p. 117). As vegetable gardening became less of a necessity it became more a pleasurable and social activity.

The rural cemetery movement, begun in 1832 with Mount Auburn in Boston, developed in response to increased urbanization. This was a consciously conceived and designed public landscape, evoking a romantic pastoralism and

functioning as a pleasureground and escape from the city as well. Jules Zanger (1980) attributes the growth of these cemeteries to a belief that they would "strengthen patriotism, help form character, teach religion and philosophy, and cultivate critical taste." Along the same lines was the development of the city park, exemplified by Frederick Law Olmsted's Central Park in New York and the Boston park system. Olmsted saw the public parks in terms of social democracy, a place designed for all people, and as a solution to urban problems of overcrowding, unsanitary conditions, and monotony. He believed that the city had a bad influence on people's mental and physical well-being and that the environment had to be changed for society to improve. Thus, the city park with its aesthetic and restful value was a necessity (Orange, 1973).

During the Victorian period the lawn and garden became an outdoor room housing ornaments and furnishings. Indoor gardening became extravagant and highly decorative, perhaps a revolt against the austere Puritan ethic and as an "innocent celebration of joy in living" (Swarthout, 1975). Technology, and especially the development of the lawnmower, transformed the look of the home landscape. Front yards became a national institution (Jackson, 1982) and the suburban garden has largely remained unfenced, symbolic of a national sense of freedom and liberty. The mass production of gardening tools, fertilizers, and pesticides made plants and gardening products affordable and accessible to the middle class. Mea Johnson (1985) notes that paradoxically, gardening became the pursuit of the middle class only after industrialization had taken people from their

agrarian roots.

Today the American suburban garden provides an environment for comfort and enjoyment in daily living. As many people design and plant their own private gardens, it is one art readily available as a creative expression to more than just a select few. Plant societies, garden clubs, and flower shows serve to inspire people in the horticultural arts, and often serve a social function in people's lives as well (see p. 126). Lack of space in urban areas has brought a revival of the community garden and a renewed interest in making the city more livable. Parks and gardens are now perhaps on a smaller scale, although there is a strong interest in preserving outstanding gardens of the past as public showcases and recreation areas as well as reminders of the accomplishments of the past. For many, the garden is one way to experience that intimate contact with nature that was once an unremarkable part of our lives.

This has been a quick and oversimplified look at the historical development of major gardening traditions. Unfortunately, such a view omits the small groups of people scattered all over the globe who have never gardened on a grand scale or as part of a larger tradition. Much more field research is needed to unearth all the different relationships that exist between people and plants. One such study, in Peru, of settlements of mountain peoples migrating into urban settings (Thompson, 1983) uncovered that people there plant trees often before beginning to build. Potted plants and flowers such as nasturtiums, geraniums, and

poppies, are a common sight on balconies and roofs. This is especially significant as water is scarce and must be purchased and transported great distances. In these short-term settlements the growing of ornamental plants, which provide no food value, doesn't fit in with the previously presented concept of ornamental gardening as a product of leisure and stability. Obviously, other forces are at work, and we cannot project values of one culture upon another. We can, however, begin to explore further and understand more about the interrelationships between people and plants, whether in the urban areas of the "civilized" world, in developing nations, in tribal societies, or any culture in between, and in all the diverse biological habitats around the world.

Instructional Objectives

After completing this section students should be able to:

1. Describe the development of the first horticultural activities and analyze how they influenced people's lives.
2. Identify and describe some of the functions that gardens serve, both in the past and today.
3. Using examples, discuss how gardens reflect people's philosophy of life, including attitudes towards nature and the city.
4. Identify and discuss factors that have influenced people's style of gardening.
5. Illustrate how the garden may develop as an artistic creation and serve people's aesthetic needs.
6. Describe and contrast gardening styles of various periods in history and cultures, including an analysis of the forces responsible for the differences.

Instructional Resources

Films

Garden of God, Walter J. Klein, 1972, 15 minutes, Color

A visual journey among the flowers mentioned in the Bible, which includes stories about the plants, roles they played in biblical history, and their particular significance. One discovers the rich history of plants in the Bible.

Available from:

Films Incorporated
440 Park Ave. South
New York, NY 10016
800-223-6246 or 212-889-7910

Great Gardens: Japan, 27 minutes, Color

A tour of Japanese temples, shrines, and gardens, which captures the beauty of the many strolling and viewing gardens of the Japanese.

Great Gardens: England, 25 minutes, Color

An exploration of British gardens, parks, cottages, and castles, with a historical emphasis.

Two above films available free of charge from:

Chevron Chemical Company
Ortho Consumer Affairs—Ortho Films
P.O. Box 7144
San Francisco, CA 94120-7144

Queen of the Autumn: The Chrysanthemum in Japan, 22 minutes, Color This film reveals the visually delightful experience of the autumn chrysanthemum festivities in Japan and shows the important role the flower plays in Japanese culture.

Available from:

Audio-Visual Resource Center 8 Research Park
Cornell University
Ithaca, NY 14850
607-256-2091

Herbs—Use and Tradition

An exploration of herbal lore and usage through history, from the first century, through the Middle Ages, to today.

Available from:

University of Nebraska
Department of Horticulture
377 Plant Sciences, East Campus
Lincoln, NE 68583-0724

Suggested Readings

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CHAPTER 4

PLANTS AND GARDENS IN LANDSCAPE DESIGN TODAY

An examination of our immediate environment today reveals that there is little that remains unaltered by human hands; even the more rural areas in the United States display the influences of people living in that environment. Of the American forests that existed when the first European settlers arrived, only 4.5% remain. Those are now mostly preserved in national forests and parks (Nighswonger, 1975) and wilderness areas, by the very act of preservation have been altered from their natural state. People rearrange and manipulate their surroundings, from the personal and intimate to the large scale landscape traditions. While much landscape design is pragmatic, on both conscious and unconscious levels it is also a response to a sense of aesthetics, both innate and acquired preferences, current fashions or fads, as well as cultural ideas about the environment.

Producing optimal environments for ourselves is no easy task and it requires an integrated approach that allows for many variable elements. While there is no turning away from technology, in *Design With Nature*, Ian McHarg (1969) expressed optimism that we could cooperate in a "biological partnership" with nature. However, it is sometimes difficult to maintain that optimism in the

face of technological intrusions upon and outright destruction of nature.¹⁹ Plants are but one part of the realm of nature, yet they offer us a means of making the space we inhabit more livable. Plants can help to create areas that are more psychologically pleasing, physically comfortable as well as more functional, and properly landscaped areas serve to promote harmonious relations between structures and nature (Eckbo, 1966).

Potential Uses of Plants in the Landscape

Plants are important tools in regulating environmental quality and the responses of people in that environment. The functional spectrum of plants includes architectural uses, engineering applications, climatological control, and aesthetic enhancement (see p. 44). Gary Robinette (1972) thoroughly explains these applications and details how to best employ plants to achieve control over the quality of our physical surroundings. Alexander et al. (1977) describe how trees can create special social places, e.g., to define an outdoor room, form a gateway, enclose an open space, or line a path or street. These functional uses of plants are concrete concepts that can easily be plugged into specific situations. Less acknowledged, however, is how aesthetics are a part of how we make use of plants. In extolling the virtues of trees in urban design, Henry Arnold (1982) notes the value of trees to

¹⁹This again raises the question of the validity of this perceived separation between humans and nature. Anne Spirn (1984) instead describes nature as existing on a continuum between the wilderness and the city.

create distinct patterns and rhythms, scale suitable to people, and unity among disparate elements. The perceived aesthetic quality of the places we frequent influences our daily lives and how we feel, and plants significantly contribute to that aesthetic quality (see p. 48).

The first step in determining how plants and gardens may best be put to use in the conscious design of our landscape is to identify the possible sites for the preservation, introduction, or reintroduction of vegetation. In the oftentimes severe city environment, people are frequently drawn to the softness and green that plants provide (Malt, 1970). Streets and avenues, parks, plazas, pedestrian ways, and other public spaces all benefit from the presence of plants. Areas such as parking lots, traffic islands, and median strips, which have been created to accommodate the car, have compromised aesthetic quality and human enjoyment. These spaces are prime targets for planting. Greenbelts are another means of incorporating green areas into the city, making vegetated areas more accessible than a remote park (Ross, 1978). The potential for planting sites is also expanding, especially with the use of containers, raised planters, and modern technology that has provided us with improved growing media, fertilization and irrigation systems, and new cultivars that are more tolerant of adverse conditions. These sites include rooftops, terraces, vacant lots, paved areas, and indoor settings. Greenery can reduce urban harshness, act as a buffer between people and traffic,²⁰ extend

²⁰Seattle's Freeway Park, situated atop a major interstate highway, is a good example of a park designed to utilize that space effectively by screening the view and noise.

architectural design, provide transitions between spaces and buildings, moderate climate and solar radiation, provide sites for recreation and relief, and establish and reinforce the desired image of an area.

As our needs for nature and vegetation, as described in chapter one, do not disappear when we inhabit or visit the city, there should be no reason to exclude nature and vegetation from the built environment. The impact of the presence of vegetation even in small amounts on visual quality is probably greater for urban areas than in the suburbs and rural areas. Our population is for the most part an urban one, many suburban dwellers become urbanites during the workday, and the city draws numbers of tourists and visitors seeking entertainment. Thus the potential for improvements that will significantly affect people is greatest in the city. And while much urban park design has been based on the concept of providing an escape from the city, perhaps we need to think more about removing that separation and making plants an integral part of that environment instead.

In the suburbs and rural areas the space available for parks and outdoor green space is perhaps greater than in urban areas. People landscape around their homes, design their own private gardens, and build greenhouse extensions onto their houses. Agricultural land is cultivated and wilderness areas preserve stands of vegetation. Towns and villages have public parks and squares, which are for the most part kept as green areas, and civic groups often sponsor public plantings. However, in these less urbanized areas, which are often becoming more urbanized,

there is still a need to examine the landscape, preserve existing vegetation, protect endangered species, and make sure the design provides the most suitable landscape.

Humans have created extensive indoor environments for themselves—houses, apartments, offices, factories, schools, and shopping malls. People spend a large proportion of their time indoors and an interior plantscaping industry is growing (see p. 5) out of a concern for the quality of these spaces. People frequently cultivate plants indoors when there is no possibility of gardening outside. In addition, house plants, cut flowers, and floral arrangements are used to ornament the indoor setting. In offices, plants may be used to divide space, bring some of the natural world inside, perhaps make employees feel more comfortable, and allow people to individualize and personalize their space in the same manner as they might with artwork. A view into an atrium may provide a calming and refreshing scene. Store window displays lure people inside and plants may be used to make that display more attractive. In a shopping mall the attempt may be to create an atmosphere where people will feel comfortable, perhaps linger and shop more.²¹

While the paved outdoors and walled-in interiors tend to cut us off from vegetation, the potential is there to create green in these areas. Too frequently plants are placed in an area as an afterthought in an attempt to provide some

²¹ At times this addition of plants is born out of economic motives, yet to be an effective commercial device it must tie into people's responses and produce results.

ornamentation, but this is not the best approach. As we come to recognize and learn more about the value of vegetation and its potential uses, architects, landscape architects, and interior designers are able to incorporate plants into their designs and make plants an integral part of them. The environmental requirements of both plants and people can be accommodated with careful design and maintenance.

Analysis of Planting Sites

Many sites, both indoors and outdoors, may not always provide the most optimal conditions for plant growth. To ensure the continuing use of plants it is crucial to increase survivability through recognizing the limitations and dealing with the problems. The city poses specific problems and threats to plants. In comparison to non-urban areas, there are higher wind gusts and temperatures, together with lower relative humidity, reduced solar radiation, and high levels of air pollutants (Schmid, 1975, Table 1. p. 25). Artificial lighting that interferes with natural growth cycles, limited area for root growth, inaccessibility to water, and the pressures of large numbers of people sitting on, walking on, or otherwise mutilating the vegetation present additional problems. Provisions for sufficient soil depth and design techniques to reduce soil compaction are critical elements in the success of plantings. Indoors, inadequate ventilation, frequent drafts, low relative humidity, and low light intensity create difficult growing conditions. There are additional problems with container size restrictions, poor drainage, and poor soil quality. In

all cases, insects and diseases must be monitored and controlled, and watering must be done properly. Therefore, careful site selection, site analysis, and site preparation are essential, followed by sensitive design, selection of appropriate plant materials, careful installation, and continued maintenance (Miller, 1979).

Designers and horticulturists must be partners in this venture to ensure that plants are utilized to their fullest potential and that they thrive and create aesthetically pleasing experiences. Each specific site requires an individual solution and plan. Part of what makes a landscape pleasing is its unique character. Yet, the greening of our landscape, both indoors and outdoors, need not be restricted to the professionals. Even if only on a small scale, a store owner may place a planter in front of the store window, an office worker may fill a windowsill with plants, a block association may initiate a program of planting street trees, or a garden club might take on the planting of a traffic island. The state of Massachusetts has started an adopt-a-space program to encourage public participation in planting and maintaining public areas.

Public parks, plazas, and greenbelts serve as recreation areas, to refresh people, both spiritually and physically. They provide access to nature, and vegetation, as well as fresh air and sun (or shade). Here vegetation is not an end in itself, but an important part of the total environment. Seymour Gold (1977) documented that more trees bring greater usage of and satisfaction with parks. William Whyte's (1980) studies of people's behavior in urban spaces indicate that

important factors in creating functional areas that people actually use are protection from the wind, views of the passing scene, the balance of sun and shade, and the feeling of enclosure. Carefully designed plantings help provide some of these essential elements.

The development of rooftops as planting sites serves some of the same functions as landscape development on the ground level. In congested areas this expands the amount of usable space, especially when one considers how much of the earth's surface consists of roofs. Rooftops provide access to light and air, are situated away from traffic and congestion, are able to provide privacy and a more restful and relaxing setting, and provide views for pedestrians on the street or for those gazing out their windows (Robinette, 1976). While the harsher climate (wind and sun), restricted root space, and limited load-bearing capacity of the roof are limiting factors, proper design and planting can overcome these difficulties so that these sites may offer natural beauty in this heretofore unexpected place. A rooftop is also an ideal site for a greenhouse, such as the tropical jungle atop the aquarium in Baltimore, Maryland.

Our auto dependent society also influences the ways we are able to use plants effectively. While air pollutants and road salt present direct and visible threats, new roads and the widening of old ones slowly eat away at the space allotted to vegetation. The design of scenic highways can, however, provide visual delight and it is possible to construct them without massive destruction of

vegetation. Plantings may enhance the scenic quality as well as be functional, e.g., to control erosion or serve as windbreaks. Thus the roadway may become an attraction in itself and not merely a route of travel. Driving for pleasure is a popular outdoor activity (Lee, 1966) and people do choose to drive on those roads that are more aesthetically pleasing (Ulrich, 1974). The Skyline Drive in Virginia is an excellent example of a roadway consciously designed to provide distinctive scenic views. However, plantings to be viewed from a moving automobile must be large enough to have a significant impact (Ulrich, 1976). Traffic islands in urban areas may be designed with smaller plants, but the greatest impact is still achieved through mass plantings that provide bold statements of color and texture. Those islands planted with trees, shrubs, and flowers are also more visible and thus more functional in channeling traffic. Vines planted along walls also soften that view and may have a positive impact on roadways.

The more intimate and closeup experience of plant aesthetics remains in the private home garden. Today, in their private domains people use plants along with other elements to distinguish their homes and personal spaces. While striving to be unique, there is also a conformity to community values. The traditional front yard provides an area of openness and display in contrast to the backyard, which has been the outdoor living space, an area for privacy. While the use of plants to serve these purposes is often influenced by current trends and fashions,²² people

²²See May Theilgaard Watts (1975).

control the size, design, and purpose of their gardens to meet their particular needs and desires.

Pierce Lewis (1979) urges us to go to the landscape, ask questions, and read it for the clues to our culture that are to be found there. This certainly can be done for the way we use plants. An inspection of our residential landscape shows that we do place a certain emphasis on the use of plants and individual species and cultivars also go in and out of fashion. Apartment complexes and housing developments often include plants in the landscape design. Condominiums and retirement communities provide maintenance contracts to ensure the upkeep of the landscape, yet often still offer people the opportunity to individualize their landscape and actively garden if they so desire. One condominium development in Florida has twelve acres of tropical gardens as well as a variety of horticultural activities and resources for its residents (Oprzadek, 1985). Here the building design and the landscape became indistinguishable.

People install foundation plantings to bring together the house and yard, specimen plants to serve as aesthetic accents, hedges to provide screens for privacy, trees for shade, flowers to bring indoors, and shrubs to attract wildlife. But people also use plants to conform to community values as well as part of the process of making a place home. We remember the trees we climbed as kids, or the azaleas that were planted when mom came home from the hospital. The changes in that landscape and the growth we have observed and tended over the years somehow

make it more ours, a part of our experience and memory. When people move to a different climate they still attempt to grow their familiar plants and bring some of their old landscape with them.

People may interact with plants in different ways, but the importance of plants is demonstrated when we imagine a house with a concrete front yard, a public park devoid of vegetation, or compare a tree-lined boulevard with an urban street without a single tree. As discussed in chapters one and two, plants are more than frivolous decorations, and we need to be innovative and discover new ways to ensure a place for them in our modern landscape. And, while we often measure the cost of planting and maintaining a tree, we need to ask how we measure the cost of an ugly and inhospitable environment devoid of plants.

Instructional Objectives

After completing this section students should be able to:

1. Identify and describe the various settings in which plants, gardens, and parks may be utilized in our modern landscape.
2. Describe the functions that plants perform in these settings, especially in relation to the people present.
3. Discuss how the presence of plants influences the environment and people's perception of the environment.
4. Identify and discuss the factors that must be considered when using plants in a particular location, design elements that will foster plant growth, and the procedures to improve survival rates.

Instructional Resources

Film

Small Space Gardens, Ortho Films, 20 minutes, Color

Everyone can have a garden, even in the tiniest space—a porch, ledge, or windowsill. This film is filled with ideas for gardening in limited space.

Available from:

Chevron Chemical Company
Ortho Consumer Affairs—Ortho Films
P. O. Box 7144
San Francisco, CA 94120-7144

Slide Set

Trees for Urban Roadways, Cornell University, 1981, 65 slides, script/cassette
Proper selection of trees for urban roadways is discussed, and the effects of various site factors demonstrated.

Available from:

Audiovisual Resource Center
8 Research Park
Cornell University
Ithaca, New York 14850
(607) 256-2090

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CHAPTER 5

HORTICULTURAL THERAPY

While gardening serves as an engaging hobby, a source of personal, community, and national pride, and a means of enhancing our surroundings, horticultural activities may also function effectively as a therapeutic modality. People's responses to and interactions with nature and vegetation, combined with the effects of active involvement in gardening, as discussed in chapters one and two, provide the basis for horticultural therapy. The focus, however, shifts to the people, and plants become the medium through which to achieve improved mental and physical well-being, to raise levels of motivation, and to help people function more productively. Diane Relf (1981a) provides the following definition of horticultural therapy:

The use of horticulture in a structured, goal oriented activity designed to bring about a specific change in a disabled or disadvantaged individual as part of a total treatment process administered by a trained professional who is usually part of a treatment team.

This definition of horticultural therapy as a professional tool does not, however, mean that there are no therapeutic benefits to be derived from gardening in one's own back yard.

History

What is known today as horticultural therapy has existed less formally for over one hundred and fifty years. Gardening was recognized as a beneficial activity in mental hospitals of the 19th century, where patients were seen to improve when working on farms, an incidental benefit derived from this agricultural activity that was aimed towards grounds maintenance and food production, rather than as a therapeutic treatment for the patients (Lewis, 1976). Residential institutions for the mentally deficient also usually included farm labor in addition to other work at the institutions.

The acceptance of the therapeutic value of gardening grew slowly but steadily, and by the turn of the century many hospitals and institutions in the United States established programs that used their grounds and farms in the treatment of psychiatric patients and to train the mentally retarded. In the early 1900's several institutions expanded the use of horticulture, notably Friends Hospital in Philadelphia, Pennsylvania and the Menninger Foundation in Topeka, Kansas, both of which still operate horticultural therapy programs. The establishment of Veterans Administration hospitals to care for the returning soldiers brought increased use of horticulture as a therapeutic medium. A survey of V.A. Hospitals (Zadik, 1981) revealed that approximately 18% of those hospitals have horticultural therapy programs, often under many different departments.

Horticultural therapy has gone through many changes²³ and has evolved into a recognized profession. Universities have developed horticultural therapy curricula, and in 1973 a national organization was formed, the National Council for Therapy and Rehabilitation through Horticulture (NCTRH). Researchers have begun to document and validate the claims of the benefits of this therapeutic modality. Disabled and disadvantaged persons are making their way into the horticultural job market, and in 1983 the U.S. Department of Education funded *Horticulture Hiring the Disabled*, a project designed to improve employment and training opportunities in horticultural careers for the disabled. A grant was received from the Department of Health and Human Services in 1984 for the operation of a national demonstration project to expand employment of developmentally disabled persons in the horticulture industry.

Current Applications of Horticultural Therapy

Horticultural therapy helps people adjust to their disabilities, develop interest in their surroundings, and to once again find meaning in life. Professionals in many fields are taking advantage of this modality so that one finds physical therapists, occupational therapists, nurses, social workers, recreation therapists, psychiatrists and many others practicing horticultural therapy. While goals and objectives will vary, both from population to population as well as between

²³See Lewis (1976) for a detailed history of horticultural therapy in the United States.

individuals, horticultural therapy is utilized today with psychiatric patients, the developmentally disabled, the physically disabled, the elderly, substance abusers, the incarcerated, and the socially disadvantaged. Programs are located in hospitals, convalescent centers, nursing homes, schools, day treatment centers, prisons, and vocational training centers.

Therapists use their knowledge of horticulture and human functioning to design activities and develop relationships with the clients to bring about beneficial changes. Diane Relf (1981a) identifies three mechanisms by which horticultural therapy works: interaction, action, and reaction. Interactions take place between therapist and client, client and client, and client and non-client. Between the therapist and the client the aim is to open communications on difficult subjects or deal with those that the client may not be aware are threatening. Interactions between clients and with non-clients help towards developing social skills required for functioning more independently. Horticultural activities foster relationships by providing common interests, shared experiences, and perhaps competition. Those interactions may develop naturally or the therapist may provide structure to achieve specified objectives. The second mechanism, action, is the actual involvement with plants. Through the horticultural activity specific functions and experiences are acquired and/or rehabilitated, e.g., coping with frustration (Stamm and Barber, 1978). The third mechanism, reaction, refers to the passive experiences with plants. As discussed in chapter one, plants are stimuli to which humans respond and are a part of an environment that offers opportunities for

learning and aesthetic pleasure.

Stamm and Barber (1978) place the value of horticulture as a therapeutic medium in its ability to touch upon a variety of human emotions, experiences, and developmental issues, especially in comparison with other therapeutic activities. Analogies can be drawn between cycles of plant growth and human growth (see Table 5-1, p. 106), and an alcoholic's drinking even has its parallel in the overwatering of a plant. They claim that even the most deeply disturbed patient comprehends the parallels in human and plant development and the importance of the earth in maintaining life.

The goals and objectives of a horticultural therapy program generally fall into four areas: intellectual, social, emotional, and physical development (Hefley, 1973). Intellectual benefits include learning new skills, terms, and concepts; improvement of communication and observation abilities; the arousal of curiosity; vocational and prevocational training; and stimulation of sensory perception. Social benefits are derived through personal interactions and the learning of responsibility, cooperation, and respect. Emotional growth results from tangible accomplishments and the resulting self-confidence and self-esteem, learning to use the activity as an appropriate outlet for hostilities and aggressions, the development of a sense of time and an interest in the future, and the satisfaction of creative drives. The increase in a client's self-esteem is probably one of the most important contributions of the horticultural activity, which ties in with Edward

Table 5-1: Some Comparisons Between Plant and Client
Life Cycle Events

Taken from *A Graphic Definition of the Horticultural Therapy Model*
by Richard H. Mattson (1982), p. 47.

Plant	Client
Seed, pollen, ovule	Egg, sperm, fetus
Pollination, fertilization	Conception
Germination	Birth
Leaves	Hands
Trunk, stem	Body
Branches	Arms, legs
Flowers	Faces
Watering	Drinking
Fertilizing	Eating
Flowering, blooming, fruiting	Child bearing
Growth	Professional work, education
Development	Individuation
Pot-bound	Confined
Diseased	Illness
Wilted	Dejected, tired
High yielding	Productive
Weeds, insects	Undesirable conditions
Frosted	Death

Stainbrook's (1973) idea of self-esteem being the key to well-being. The physical activity of gardening can improve motor skills, develop muscle tone, improve endurance, and provide sensory stimulation. While all these different benefits are not unique to horticultural therapy, some of the combinations of benefits are. For some clients horticulture will be a more appealing medium than another kind of therapy and the horticultural setting provides an atmosphere in which people may

find it easier to relate to one another (Relf, 1981a).

A study by Jeffrey A. Howard et al. (1982) of clients' perceptions revealed that they consistently identified themes from Relf's four categories in the horticultural therapy activity. The most frequent reasons given by clients for attending horticultural therapy activities were that they found the activities enjoyable, appreciated the opportunity to grow plants, wanted to learn new things, or because the activities were a way to fill their time (Howard et al., 1982).²⁴ Horticultural therapy is not always for everyone, and may not be the most appropriate therapy for a particular client. While horticultural therapy is probably most successful with those most interested in plants, clients' attitudes may change as they are exposed to and become involved in the activity.

As a gardener, one becomes instrumental in making something grow and keeping it alive. A personal sense of achievement is developed and that achievement is acknowledged by others. For those in institutions, the horticultural activity is especially beneficial because the individuals must now make independent decisions and develop a sense of responsibility that is lacking in a setting where often everything is done for the client and they are always told what to do. For

²⁴Some horticultural programs are not always set up explicitly as therapeutic or rehabilitative programs and are simply one time-filling mechanism available to clients. However, it is important to note that this study was of clients' perceptions, and they may not always be aware of the therapeutic nature of the activity or of the therapist's role as a therapist, which may or may not aid the therapists in their efforts (see p. 78 in Howard et al., 1982).

those people who have been on the receiving end, the tangible horticultural products enable them to be donors as well. New interests may be developed, and horticulture can be an ideal leisure activity that clients can continue on their own when treatment is terminated.

Horticultural therapy does not necessitate an extensive program with expensive facilities. It may be as simple as growing plants on a windowsill or under fluorescent lights. It may be a one hour per week activity, either for individuals or in groups, or it may be a daily work training program with elaborate greenhouses and outdoor gardens. What activities might be a part of a horticultural therapy program? Physically disabled clients might mix soil, take cuttings, and pot up plants, while learning to use prostheses, exercise muscles, as well as learning that they can still lead useful lives. Psychiatric patients might design and plant an outdoor garden as a group, while developing social skills and relieving aggression through digging or hoeing. In a sheltered workshop mentally retarded clients might take care of nursery stock or wait on customers, while learning job skills such as coming to work on time and following instructions, as well as specific horticultural techniques. In a group therapy session clients may analyze plant growth, make analogies with their own lives, and perhaps learn to deal with some of their problems.²⁵

²⁵See Jack Kyle (1975) for a discussion of activities that use plants to promote thinking and reasoning.

Other activities might include taking care of plants on hospital wards or grounds, making floral arrangements or dish gardens, learning horticultural crafts such as drying flowers or making potpourri, growing vegetables or herbs and cooking with them, or forcing bulbs and branches. Excursions to parks and gardens, viewing films or slides, or any other activities in which the clients are interested could be incorporated into a horticultural therapy program. While there is no limit to the horticultural activities that can be taken on, the program should always be designed to meet the specific needs and goals of the clients. For those with physical limitations there are many techniques and tools to make gardening possible (see p. 130).

Statistics indicate that the numbers of people with physical or mental limitations are growing and the elderly are becoming a larger segment of the total population. Special services and innovative programs are necessary to meet these people's needs. Horticultural programs for therapy, rehabilitation, recreation, and education are one way we can work towards improving the quality of everyone's life.

Instructional Objectives

After completing this section students should be able to:

1. Give a historical background to the use of horticultural therapy and explain how some of the responses to nature and vegetation and the responses of people when they are actively growing plants form the basis for horticultural therapy.
2. Define horticultural therapy in terms of its therapeutic, rehabilitative, and vocational applications.
3. Identify specific goals and objectives of a horticultural therapy program and design a program for specific populations in various settings.
4. List several horticultural activities and analyze the various parts of that activity and the ways in which they might have therapeutic effects.

Instructional Resources

Film

Garden in the Heart, Airlie Foundation, 1983, 16mm, Color, 20 minutes
Horticultural therapy as rehabilitation.

Slide Sets

Horticultural Therapy

A presentation of what horticultural therapy is all about. Includes examples of the various populations, settings, goals, and activities that make up a horticultural therapy program. Includes script.

Videotape

From These Seeds, PBS, 1979

Charles Lewis narrates this story of the profound influences gardening has on people's lives. Includes shots of public housing gardens and horticultural therapy at work.

The above available from:

National Council for Therapy and Rehabilitation through
Horticulture
9041 Comprint Ct. Suite 103
Gaithersburg, MD 20877
301-948-3010

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CHAPTER 6

EXTENDING THE HORTICULTURAL OPPORTUNITIES

Leisure is an important part of everyone's life and modern technology spares us increasing amounts of time. Using this time in a satisfying manner requires finding the appropriate activity to provide stimulation, challenge, relaxation, and enjoyment. Horticulture is one such activity that may serve as recreation, and at the same time produces tangible results. Gardening is reported as the number one outdoor leisure activity in the United States and the National Gardening Association had a membership of 250,000 in 1984. Eighty-three percent of all households (71,000 households), are involved in lawn and garden care, 47% in flower gardening, 40% growing vegetables, and 46% in growing indoor house plants (National Gardening Association, 1985a). These statistics do not include the activities of garden clubs and plant societies, professional horticulturists, or people who are simply enjoying the labor of others through visiting gardens or reading horticultural publications. Thus, the numbers of people involved in horticultural and related activities is a significant portion of the population.

Many people are, however, limited in one way or another when it comes to gardening. Urban dwellers with no land of their own need to find alternative gardening sites and those who lack horticultural knowledge and experience must

find the means to develop these skills. Children require supervised settings where they can learn the horticultural arts and those with physical disabilities must discover techniques and tools that will make gardening easier for them. Yet, despite the problems and barriers, people continue to get their hands into the soil. Many paths through the garden are being rediscovered and others being devised to make horticulture available to everyone.

Community Gardening

People gardening together cooperatively has its roots in the earliest human settlements where people lived and worked together in self-sufficient units. Thus, community gardening is not a new phenomenon, but one that in the United States has been rediscovered as a way to reconnect to the earth. The year 1893 marked the beginning of organized community gardening in this country (Bassett, 1981), while for Europeans, from whom we acquired community gardening, it is a tradition that goes back a few centuries. Records of allotment gardens, as they were called, show them to have been flourishing in 1731 (Coe, 1978).

In the 1820's in Great Britain *guinea* gardens were at their peak, while in Germany the *kleingarten* was established by the government as a garden for the poor (Lovero, 1985). The Industrial Revolution transformed much of the farmland around the cities into residential, industrial, and commercial property and by the end of the 19th century cities were severely overcrowded with unhygienic

conditions prevailing. Some British industry did provide allotment space in an attempt to improve working conditions. The Allotment Acts of 1887 and 1890 and later legislation in 1907 and 1908 helped to provide garden plots to citizens without access to land. In Germany in the 1920's the government published a magazine, *Der Kleingarten*, for the people involved in this type of gardening. Today these *leisure gardens* are flourishing. In 1977 there were more than one million plots in Great Britain alone, 500,000 in West Germany, 36,000 in Switzerland, and 30,000 in Sweden as well as many more in Denmark, France, and the Netherlands (Gardens For All, 1977b), and many of these are strictly leisure gardens and not solely for food production. The International Leisure Gardener's Association was founded to address the needs of these gardeners.

Thomas Bassett (1981) depicts community gardening in America as occurring in distinct ideological movements and he has identified seven overlapping periods (see Table 6-1, p. 119). Specific gardening programs arose in response to social and economic crises, to help alleviate stressful conditions. Some of the goals were work relief, nature study, civic beautification, or wholesome food production, and participation was often viewed as a sign of patriotism. Community gardening functioned to reinforce traditional values and uphold the American way of life. A quick summary of these movements demonstrates how community gardens served as part of the cultural framework of the society.²⁶

²⁶See Bassett's article for a complete recounting of American community gardening history.

Table 6-1: American Community Gardening Movements

Movement	Time Period
Potato Patches	1894-1917
School Gardens	1900-1920
Garden City Plots	1905-1910
Liberty Gardens	1917-1920
Relief Gardens	1930-1939
Victory Gardens	1941-1945
Community Gardens	1970-present

Taken from
*Reaping on the Margins, a Century of Community Gardening in
 America* by Thomas Bassett, 1981

The “potato patches” grew out of the Panic of 1893, a period of unemployment, labor unrest, and poor urban conditions. The garden plots were to provide food and supplement the income of the destitute. The goal was to promote self-respect and independence, a recurring theme in community gardening history. Bassett’s analysis identifies the vacant lot cultivation of this period as one mechanism for maintaining social order in a time of economic instability.

The “school gardens” arose from the nature study idea as a way of instilling civic responsibility and an awareness of the environment. The garden became another classroom in which to learn a love of nature, the dignity of labor,

and good citizenship. Today there are still many school and children's gardening programs operating (Ocone, 1983; Pesch, 1984) and often with some of the same goals. They are successful because the garden serves as a real-life laboratory where academic skills and knowledge can be acquired or reinforced (for further discussion of childrens gardening see p. 125). "Garden city plots" were a part of the campaign to beautify the cities. Teachers and school children often participated in the clean-up of vacant lots and their transformation into fruitful gardens. Through the activity and appearance of gardening, urban life was to be more agreeable and physical and mental health would be improved.²⁷ Additionally, merchants had much to gain from attractive and regenerating neighborhoods.

In 1917 the National War Garden Commission was organized to channel American patriotism into the garden for food production and conservation, and to educate the people how to cultivate the land and preserve food through canning and drying. Thus the "liberty gardens" were born and national spirit flourished in the garden. A poster put out by the Commission decreed "Every Garden a Munitions Plant," while the Marion [Indiana] War Garden Association ordered "Earn the Right to Stay Home—Plant a Garden."²⁸ Gardening became a popular activity that involved many people who otherwise would not have been gardeners. Charles Lathrop Pack (1919) estimated that by 1918 there were over five million

²⁷ This is a similar concept to Olmsted's idea of the value of the urban park (see p. 75).

²⁸ See Pack (1919) for reproductions of some of these posters.

gardens that produced 525 million dollars worth of food.

The Great Depression returned the community gardens to the role of assistance for the poor. During this period of "relief gardens" there were individual allotments as well as industrial gardens managed scientifically for mass production. Despite debates over which system functioned best, it was generally agreed that the gardens provided honest work and allowed people to maintain their self-respect and independence. It was during the period of "victory gardens" that individual plots won out and became the most popular. This reflected the democratic ideals of private ownership, self-reliance, and the pursuit of individual happiness, which were all tied to the patriotic energies of the war effort. Twenty million gardeners took part in this patriotic activity, promoted by the War Food Administration, and they produced 40% of the fresh vegetables consumed (Naimark, 1982).

Today community gardening continues. Heightened environmental awareness in the 1960's created a "back to the land" ideal and a concern about pesticides and chemical additives in food. Inflation, unemployment, and rising fuel and food costs have also been influencing factors. Additionally, new immigrants from agrarian cultures are bringing their gardening instincts and skills with them. By the mid 1970's a "community gardening" movement was sweeping the United States, and in 1982 there were 1.5 million community gardening plots (Robinson, 1982). Sponsors of projects include social service organizations, parks and recreation departments, housing authorities, horticultural societies, Cooperative

Extension Services, and many grass root organizations such as tenant and block associations.

While in Europe the allotment gardens were permanent, community gardening in the United States has gone in and out of favor, in response to fashion or state of the economy. Yet, the movements reemerge and the gardening persists. Many groups are acquiring their own land to ensure the permanence of their gardens, which has become a prime issue today. Two national organizations, the National Gardening Association (formerly Gardens For All) and the American Community Gardening Association, have emerged to promote and ensure the future of community gardening in the United States.

The benefits of a community garden accrue to the entire community, which distinguishes it from the private backyard garden. There is a fostering of community development and a nurturing of interactions between different ages and cultures. There is a sense that gardening is therapeutic and promotes self-reliance and independence. It is an activity that can involve the unemployed, the elderly, children, or those with disabilities. In Bassett's (1981) estimation, community gardening reflects the societal values of land ownership, competition, and hard work, the backbone of our social and economic system, and he credits its success in the United States to the tradition of Jeffersonian democracy. Charles Lewis has repeatedly espoused the wonders of community gardening, reporting reduced vandalism in housing projects and finding that people took new interest in their

surroundings as evidenced by street cleaning, house painting, and what he called a "new neighborliness" (Lewis, 1972). Community gardening also promotes more efficient or sensible uses for undeveloped open space, an important issue in cities today. In Boston, community and governmental organizations have banded together and formed the Boston GreenSpace Alliance to deal with these very issues. Community gardening programs play a vital role in regreening urban areas and in dealing with problems of diminishing available land and increasing population densities.

Corporate Gardening

The many gardening projects sponsored by businesses and corporations have played an important part in community gardening. National Cash Register pioneered a project in 1897, which was inspired by the European workplace gardens. The aim was to foster the physical, mental, and moral development of its employees and their children, and produce the best factory foremen. United States companies participated in the various community gardening movements. They actively cooperated with the National War Garden Commission during World War I by putting corporate land into food production and sponsoring employee gardens during the depression of the 1930's, and through World War II. In the 1970's companies once again entered the gardening business when over 100 new company gardening projects were initiated (Sommers, 1984b).

In the corporate setting cooperative gardening has the additional potential to improve employee morale and productivity. A cooperative spirit is fostered, the garden becomes a place to meet other employees, and a sense of community and belonging develops (especially important in larger companies). In the garden the social barriers and work hierarchies dissolve. The image of the company and its management improves as the company is now more than just a workplace and a paycheck, and employees respond to the interest that is shown in them. Often the garden groups sponsor classes and workshops so that the activity becomes a learning one as well.

As machinery takes over heavy labor, people find themselves in more sedentary working situations, yet at the same time experience much stress. Many companies now sponsor exercise programs and memberships in health clubs, but gardening can also serve as a means to provide exercise, fresh air, and exposure to natural sunlight, as well as a change of pace at lunchtime or after work and a release of built-up workday tensions. An additional benefit is one of helping employees cope with retirement by allowing them to keep up with the company and use their free time in a productive manner.

For the company, a gardening project is a benefit that can be economically offered to employees. The major costs are soil preparation, an irrigation system, and perhaps a fence. The project itself can be managed by an employee group (and will probably function better that way). In addition, the

company may improve community relations as well as its image by offering plots to the community, and there may be tax benefits from donating land to such a project (Sommers, 1984b).

Children's Gardening

Gardening established itself in the school system during the school gardening movement of the early 20th century. Young children are easily fascinated by growing plants and the school garden provides a setting for learning about many other subjects. In connection with their gardening activities, students may study about soil and water conservation, world geography and climate, economic uses of plants, and how other cultures use plants. Horticultural activities teach concepts of time and measurement as well as communication skills. Horticulture can be the focus of other activities such as art projects and essay writing.²⁹ Horticultural projects teach vocational skills and gardening is also an effective medium for reaching children with disabilities. Through gardening, students become more aware of their surroundings, the natural processes, and the importance of plants in our environment. For urban children, this may be their only contact with the natural world.

The most well known youth gardening project was one that began in the

²⁹See Doty et al. (1984); Ocone (1983) pp. 63-109; and Pesch (1984) for activities using horticulture as a teaching tool.

Cleveland school system in 1904 (Wotowiec, 1979). However, children's gardening programs may also be sponsored by parks and botanical gardens, summer camps, nature centers, community gardens, Cooperative Extension Services, scouting groups, garden clubs, horticultural societies, etc. While children enjoy the same benefits of gardening as do adults, their garden may be special to them in another way. Children may often feel left out of the adult world and through growing plants they have the opportunity to experience a sense of responsibility and personal accomplishment often denied them. It is extremely important that it is their garden and their achievement. School gardening projects are also a way to provide summer activities for children and are used as a means to achieve desegregation and facilitate communication and understanding between various groups of students. Finally, children are able to contribute to the nutritional and economic well-being of their families.

Horticultural Organizations

People are generally gregarious in nature and don't operate in a vacuum. They seek out others with similar interests with whom to pursue their fascinations and activities. Garden clubs, plant societies, professional associations and other horticulturally oriented groups bring together people with a common interest in plants. Although their particular focus may be different, appealing to the home gardener growing a crop of tomatoes or the scientist breeding the perfect lily, these groups serve the important function of fostering exchanges of knowledge and

materials. Thus, a variety of organizations promote horticultural activity on a local, state, regional, national, or international level, each serving their specific constituency. The groups hold meetings, produce publications, and sponsor research and educational programs. Services and activities may include demonstration gardens, information and library services, scholarships, garden tours and field trips, buying cooperatives, and seed, plant, and pollen exchanges. Yet, the most important role they play is on the very basic level of membership, drawing people together to share their exploration of the plant world.

The first formally organized groups concerned with the growing of plants were societies for the promotion of agriculture founded in 1785 in Philadelphia and South Carolina. This was a time of experimentation and the development of new methods of cultivation, a time of scientific inquiry and discovery. Horticultural societies appeared next, the first forming in London in 1804, followed in America by a proliferation of such societies, beginning with the New York Horticultural Society in 1818 (not the same as the current Horticultural Society of New York), the Pennsylvania Horticultural Society in 1827, and the Massachusetts Horticultural Society in 1829 (Ballard, 1978).³⁰

The horticultural societies developed extensive libraries and they published periodicals and local newsletters that provided a forum for sharing

³⁰See Ballard's article for a history of the development of these societies.

information, and most continue to do so. Today, the Massachusetts Horticultural Society still has one of the most comprehensive collections of horticultural publications. Educational programs in the form of classes, lectures, and tours serve society members, but often the most visible of their activities are the spectacular flower shows they produce. The Pennsylvania Horticultural Society welcomes each spring with the largest such exhibit in the United States, five acres of floral displays and landscaped gardens. Interestingly enough, most of the horticultural societies had no land nor gardens of their own, which is for the most part still true today. The one major exception is the Chicago Horticultural Society, which has an extensive botanic garden.

Plant societies that promote the cultivation of particular genera or styles of gardening began in 1890 with the Chrysanthemum Society. A multitude of such groups have sprung up, devoted to every conceivable group from roses, ferns, or camellias to rock gardening, indoor light gardening, and bonsai. Plant enthusiasts meet regularly to share their expertise and recent discoveries, and often to exchange plants. They produce publications that display the latest cultivars, and flower shows that exhibit their achievements and introduce the public to the horticultural wonders.

In the middle of the 19th century the federal government established the system of land grant colleges, which aided the development of agriculture, including horticulture, as an academic discipline. At the same time horticulture was growing

as a commercial industry. Today there are many professional and trade organizations promoting horticultural interests. The Cooperative Extension Service functions to connect the academic world with industry and the general public. Other groups include the American Association of Nurserymen, International Plant Propagator's Society, American Society for Horticultural Science, Society of American Florists, Society of American Foresters, and Bedding Plants International.

The early horticultural societies had been mostly dominated by men, but this was not because women were not interested in horticulture. Women began to form their own groups, and by 1913 formed a national organization, the Garden Club of America. Today there are thousands of women's garden clubs across the nation, most of which are affiliated with another group, the National Council of State Garden Clubs (also known as the Garden Club Federation). Both remain strong and active groups involved in a variety of horticultural ventures, which also include community beautification, conservation, horticultural therapy, and youth gardening (Ballard, 1978). They have established their own horticultural schools and train flower show judges through a curriculum of study and practical experience. They also put on flower shows and sponsor many educational activities for their members. The Men's Garden Club of America was founded somewhat later, in 1932, and, although smaller in numbers than the women's groups, they have similar goals and programs.

Gardening as an Accessible form of Recreation

There was a time when it was not thought proper for a woman to be involved in gardening activity. With the coming of the Victorian era, however, women began to garden actively again and actually got down on their hands and knees to dig in the soil. Ladies magazines regularly featured articles on gardening and the *Ladies Floral Cabinet* was full of practical horticultural advice (Swarthout, 1975). Today, there are a large number of periodicals from which amateur gardeners may choose (see Table 6-2, p. 131), and everyone is gardening: men, women, and children; young and old; and urban, suburban, and rural dwellers.

For those with temporary or permanent physical limitations there are now many supplies and equipment that allow gardening to be a satisfying experience while reducing the frustration that previously made gardening a burden. The keys to making gardening easier lie in adapting the layout of the garden to the particular disability, growing plants that are easy to care for, and using tools and techniques to simplify the activity. Tools are available to aid those working from a sitting or kneeling position, for the gardener doing a two-handed job with one hand or with a weak grip, for the gardener who has difficulty bending, or for those with visual impairments. Many are light weight and come in several handle lengths.³¹ Structural elements, such as raised beds or pulley systems, enable those in wheelchairs or with difficulty bending or reaching to garden with less physical

³¹See Ocone and Thabault (1984) for a detailed description of available products.

Table 6-2: Popular Gardening Periodicals

Magazine	Circulation
Organic Gardening	1,300,000
Pour Nos Jardins(French)	950,000
Flower and Garden	600,000
National Gardening.	250,000
Plants Alive.	175,000
Horticulture	105,000
Your Garden(Australian)	90,000
Amateur Gardening(English).	85,000
Garden Journal(British).	65,000
Flower Arranger(British)	44,000
American Horticulturist	43,000
National Gardener	40,000
Texas Gardener	37,000
Garden	30,000
Herb Quarterly	22,000
New Zealand Gardener	22,000
Garden Design	20,000
Pacific Horticulture.	12,000

Statistics from *Ulrich's International Periodicals Directory*,
 24rd ed. 1985-6 and the National Gardening Association

effort. Stools and wheelbarrows also make garden chores much easier. Garden design and technology today make gardening accessible and easier, not only for those with disabilities, but for the non-disabled as well. Power equipment makes gardening less time consuming, an important consideration to many people in today's fast paced way of life.

The science of horticulture has progressed sufficiently so that it is easy now to grow plants in containers or under lights if one is without land. Much of the mystery of how plants grow has been revealed so that almost anyone can grow exotic tropicals or force spring bulbs into bloom in winter. Homeowners can have their soil tested to ensure the right conditions to create a pleasing landscape for themselves, and nurseries offer a tremendous selection of plant materials from all over the world.

Horticulture has become a competitive activity as well. Home gardeners compete for the earliest tomato or largest pumpkin. When the Burpee Seed Company offered a sizable monetary reward for the first white marigold, they created quite a stir that drew attention for several years until that white marigold was developed. Amateur sections of flower shows are filled with a large variety of ornamentals and vegetables in a friendly competition, and the professional horticulturists join in the competition with their exhibits as well. We continue to attempt to grow all sorts of new and exotic species.³² Many new discoveries are still being brought back from plant explorations throughout the world, such as the U.S. National Arboretum's 1985 exploration in Korea. Breeding work continues to develop more floriferous or fragrant cultivars, new forms or colors, and interspecific and intergeneric hybrids.

³²See Gurney's catalog for a selection of some horticultural oddities.

Gardening is clearly an active pursuit, requiring that the gardener be a doer. Amateur horticulturists are often found expanding their knowledge by taking courses at adult education centers or at gardens offering educational programs. Most of the garden clubs and plant societies have educational programs for their members, so that avid gardeners devote more of their time to pursuing their horticultural interests, and clearly much of these extra-curricular activities are social in nature. Gardeners always seem anxious to share their successes as well as their extra plants.

Gardening has expanded to include many new ways in which people are gaining access to plants and the benefits derived from growing them. Community, corporate, and children's gardening programs are allowing those who might not otherwise garden the opportunity to do so. Horticultural organizations and publications serve to bring people together and foster the gardening community. In addition, new techniques and equipment and the energy and enthusiasm of the gardeners themselves all work together to extend the horticultural opportunities.

Instructional Objectives

After completing this section students should be able to:

1. Analyze the possibilities for horticultural experiences that exist beyond the traditional garden setting.
2. Discuss the history of the development of community gardening and horticultural organizations in terms of social, cultural, and economic, and political factors.
3. Identify the settings in which community, corporate and children's gardening can take place and discuss how the benefits of gardening, as described in chapter 2 apply.
4. Evaluate home gardening as a recreational activity.
5. Identify and discuss other ways in which horticulture is a focus for leisure activities.
6. Define accessibility as relating to garden design and availability, and describe how horticultural activities can become more available to all people.

Instructional Resources

Films

The Vacant Lot, 17 minutes, Color

People grow food where once there was rubble and in the process their garden becomes a place of celebration. Neighborliness, warmth, and a sense of belonging take their place among the plants.

Available from:

The National Film Board of Canada
1251 Avenue of the Americas, 16th Floor
New York, NY 10020

Growing, Growing, 1976, 11 minutes, Color

A short film designed for educators working with children. The free form of this impressionistic film is rich in images and sounds, and displays the joy and wonder that children find in growing plants.

Available from:

Department of Horticulture
377 Plant Sciences, East Campus
University of Nebraska
Lincoln, NB 68583-0724

Minigardens, Burgess Seed Co./USDA, 1971, 13 minutes, Color

Exhibits using containers for gardening in small spaces. Types of plants and details of planting, lighting, fertilizing, and watering are discussed.

Sidewalks of Shade, Cornell University, 1981, 25 minutes, Color

Observe neighborhood and community tree planting programs. This film depicts street tree committee organization, funding, maintenance, and resolution of conflicts with utility companies.

A Tree is a Living Thing, National Film Board of Canada, 1964, 11 minutes, Color

A boy discovers that a tree grows from a single seed. A tree's life cycle and photosynthesis is depicted. For grades K-5.

Room to Grow, Pennsylvania Horticultural Society, 28 minutes, Color

This film shows a variety of horticulturists at work and is designed to develop an understanding and respect for plants, their care and uses. For grades 5-12.

Above four films available from:

Audio-Visual Resource Center
8 Research Park
Cornell University
Ithaca, NY 14850
(607) 256-2090

Small Space Gardens, Ortho Films, 20 minutes, Color

Everyone can have a garden, even in the tiniest space—a porch, ledge, or windowsill. This film is filled with ideas for gardening in limited space.

Available free from:

Chevron Chemical Company
Ortho Consumer Affairs—Ortho Films
P. O. Box 7144
San Francisco, CA 94120-7144

Greenhouse, William Cramm, 1973, 11 minutes, Color

A young boy works to repair an old man's greenhouse that he vandalized and slowly learns to appreciate the beauty he finds there.

Watch Out For My Plant, An Amital Film, 1972, 13 minutes, Color

A young inner-city boy struggles to grow a flower in the narrow patch of dirt between his house and the sidewalk. This film suggests that everyone can do something about the environment. For elementary school children.

Above two films available from:

Barr Films
3490 E. Foothill Blvd.
P. O. Box 5667
Pasadena, CA 91107
(213) 681-6978

Slide Sets

What is Horticulture, 59 slides and script

Discusses the occupational areas of horticulture and vocational training programs.

Available from:

Ohio Agricultural Education Curriculum Materials Service
Room 254, 2120 Fyffe Road
Ohio State University
Columbus, Ohio 43210-1099
(614) 422-4848

This is Community Gardening, 15 minutes, with audio tape

Covers the full scope of community gardening. It outlines the steps to take and suggests ways to locate resources and recruit people. Includes a list of resource books, names of other organizations, and a project planning timetable.

Available from:

National Gardening Association
180 Flynn Avenue
Burlington, VT 05401

Suggested Readings

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SUMMARY AND RECOMMENDATIONS

Contact with plants in the environment as well as the active experience of growing plants are important for the optimal functioning of human beings. In the home, office, or public setting, plants function to make these areas more comfortable and aesthetically pleasing, and people derive emotional and physical benefits from gardening. Through first-hand experience of growing plants, children learn the wonders of life and growth.

The history of the role of gardens in human life, provides a perspective for understanding how gardening can be a recreational activity and offers a sense of creation and renewal. It can be an educational experience that opens up a whole new world, or a social activity that binds people together. This exploration of where horticulture fits into our modern way of life continues to be relevant as we move into urban gardening and expand our consciousness of how we can and will continue to garden.

One can debate the impact on the quality of human life of the extinction of a distant species, the loss of an acre of tropical rainforest, or changing world agricultural patterns, and one can question whether humans really have innate instincts that lead them to gardening and seeking out green environments. Yet,

fascination with plants has been a part of the human psyche for a long time. We are still busily trying to breed the perfect rose and produce it in quantity, yet we need to take the time to understand why we are so involved in these pursuits, and comprehend the value of plants in our lives. These are all considerations for the future as well as for the present. This understanding is the very heart of any efforts to work towards maintaining a quality environment for ourselves in the future.

That the field of horticulture plays a vital role in influencing the quality of human life must be taught to students. It is recommended that topics and issues introduced here be used by those teaching the plant sciences to stimulate explorations and discussions of the importance of plants and expand current conceptions of the value of horticulture. A course on the social perspectives in horticulture offered in its entirety or individual chapters integrated into other plant science classes is an effective way to broaden ideas of what horticulture is all about.

Some of the main points that are essential in this analysis of horticulture are as follows:

1. People interact with and benefit from the presence of plants in their environment.
2. Plants play a role in human functioning: social, psychological, and physiological; and engaging in gardening activity has positive effects on people.
3. The role that horticulture plays in human life also extends into the realms of the philosophic, literary, and artistic.
4. Plants have an impact on the physical environment and people's

perception of the environment.

5. Gardens reflect people's attitudes and philosophy of life, and gardening styles have thus varied through different periods in history.
6. Landscape design today offers many new opportunities for using plants.
7. Horticulture can be used as a medium for therapy, rehabilitation, and vocational training.
8. Opportunities for gardening experiences are not restricted to the traditional garden, e.g., community, corporate, and children's gardening programs, and horticultural organizations.

This is only the beginning of a journey of discovery of the importance of plants to people, what Charles Lewis has called the "human dimensions of horticulture." It is hoped that explorations and research will continue into the fields of history, psychology, literature, art, anthropology, geography, etc., to reveal more about this aspect of the plant world.

APPENDIX A
QUESTIONNAIRE AND COVER LETTER

HUMANISTIC HORTICULTURE QUESTIONNAIRE

1. Name and Title
2. School and Address
3. Do you currently offer a course in Humanistic Horticulture as described in the attached letter? Or, if you offer a similar course, please describe.
4. Do you see a need for such a course? Please comment.
5. Would you be interested in offering such a course to your students? Please comment.
6. Are you interested in receiving a detailed syllabus of the course when it is completed?
7. Please feel free to make any additional comments or suggestions. Use another sheet if necessary.

Please return promptly to: Madelaine Zadik
Longwood Program
153 Townsend Hall
University of Delaware
Newark, DE 19717-1303

UNIVERSITY OF DELAWARE
NEWARK, DELAWARE
19717-1303

LONGWOOD GRADUATE PROGRAM
ORNAMENTAL HORTICULTURE
153 TOWNSEND HALL
PHONE: 302-451-2517

January 30, 1984

Dr. Donald Y. Perkins, Chairperson
Dept. of Horticulture
Auburn University
Auburn, AL 36849

Dear Dr. Perkins:

I am a graduate student in the Longwood Program at the University of Delaware. For my thesis I am developing a new course in horticulture and would like to get your response.

The course, entitled Humanistic Horticulture, will explore the human aspects of gardening: Plant/people interactions, why people grow plants, and the roles that gardens play in people's lives today and in the past. This will be geared toward undergraduates majoring in the plant sciences. The aim is to give students an additional perspective of horticulture as in most traditional programs students are usually steered directly into production or research. This would enable students to arrange additional coursework to explore this area further, broaden their view of career options, and provide a background for other study in horticulture.

Topics to be covered, and much of this will be a broad overview, include:

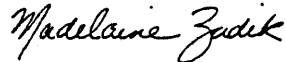
1. Human response to vegetation and nature
2. Historical role of gardens and plants in people's lives including a cross-cultural perspective
3. Landscape design today in terms of human response e.g., urban planning; built environments--malls, buildings, highways; residential communities; public parks and gardens
4. Active plant/people interactions: Characteristics of plants which cause human response; physical, psychological, spiritual, and aesthetic effects; money as a motivating factor; horticultural therapy; urban and community gardening; horticulture as recreation--home gardening, garden clubs, and civic groups
5. Accessibility--garden design and adaptive tools and equipment

I have enclosed a questionnaire which I would greatly appreciate your taking the time to fill out and return to me. I am trying to determine whether anyone is teaching such a course and how much interest there would be in offering it.

As an incentive, all those returning the questionnaire will receive a syllabus for review when that is complete, probably some time in September.

Any other questions or comments are also welcome. I look forward to hearing from you soon.

Sincerely,

A handwritten signature in cursive script that reads "Madelaine Zadik".

Madelaine Zadik
Longwood Fellow

APPENDIX B

SCHOOLS TO WHICH QUESTIONNAIRES WERE SENT

Questionnaires were mailed to plant science or horticulture department chairpersons at 95 schools. For 65 of those I had the name of the chairperson; the remainder were addressed to "Department Chair."

Sixty-five people responded (68%). Of those, 62 returned the questionnaire, two sent only a letter, and one person called. Those who responded are marked with an asterisk*. Names have been omitted for those who did not respond. Addresses are alphabetized by state.

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Auburn, AL 36849

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 Ronald M. Peterson, Professor* (Two separate questionnaires returned)
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Winnipeg, Manitoba, Canada R3T 2N2

APPENDIX C

RESPONSES TO QUESTIONNAIRE

3. Do you currently offer a course in Humanistic Horticulture as described in the accompanying letter?

No—60
Yes—1
Did—1
Other—3

Additional comments:

No, but we have a nonmajor Plant Science course.

Humanistic Horticulture is an intriguing title and concept. It might be an interesting class for non-majors and could be considered a general education type of class. We do not offer, specifically, a class in Humanistic Hort., but rather one called Ornamental Gardening (title leaves much to be desired), it is offered to non-majors, copy of expanded course outline is attached. It is well received and tends to create considerable interest in the area of horticulture.

We call it general horticulture—but it includes many of your features.

No, our dept. is too small. The faculty (myself and one other prof.) are spread out as it is when it comes to teaching.

We do not offer a course in Humanistic Horticulture. We did offer a course in Horticulture Therapy on a trial basis jointly with the Department of Recreation, but was not continued due to staffing problems.

Attached is the outline for a revision of a landscape hort. course for non-

majors which may have some elements as in your proposed course.

We do not offer a single course covering all of this material, however, we offer a 1 credit course on history of horticulture, a 3 credit course on introduction to landscape architecture, which is a landscape appreciation course, a course in horticultural therapy, which covers any of the people/plant interaction phenomena, and a general course for university students centering around indoor plant management and floral design, which covers some of topics you have listed.

Yes. Title: Plants, Man, and Environment. A study of how plants and man interact and how this interaction influences their environmental quality. Recognition of the essential nature of plants and their role in modifying the environment in which we live will be the primary focus. Two hours rec. a week, 2 credits.

How will human response to vegetation etc. be measured?

No, but doubtless we touch on these areas in all our courses.

Not as described. We do have a program (we think the oldest in the U.S.) in horticultural therapy. We expect the student in the program to meet the normal hort. requirements. In addition they take special topics and special problems courses in H.T. Our Intro. Hort. course covers some of the areas but its purpose is different.

No, but some humanistic horticulture is included in my introductory course.

The closest would be a course titled Ornamental Gardening for non-hort majors. It doesn't stress as much the humanistic response and need as you have in your outline.

We don't offer a course like the one you describe but we cover all aspects of your course in a variety of currently offered courses.

No, not as such. Some of the topics are addressed in our Landscape Appreciation and Landscape Design Classes.

Nothing similar.

We currently offer the course content described in your letter but it is woven throughout about 6 or 8 of our courses in floriculture and ornamental

horticulture and landscape architecture. We are currently revising our curriculum and it is likely that greater concentration on some of these topics will occur in our new introductory course in floriculture and ornamental horticulture.

The Dept. of Horticulture does not. We offer 2 courses for non-majors—indoor plants, outdoor plants including fruits, vegetables, and ornamentals.

We do not offer a course in Humanistic Horticulture as described in the accompanied letter. However, we do offer a similar course called Environmental Horticulture where we go into how plants relate to the environment and to the people that are in the environment. This is our beginning course in horticulture and we try to build up the interest in all areas of ornamental horticulture in that course.

We offer a course in sociohorticulture. It is approx. half horticultural therapy and half horticulture in urban and rural development. Topics such as community gardens, buyers coops, farmers coops, and international horticulture are included.

I have revamped and oriented my Adv. Veg. Production course and paralleling it more of the concept of "home gardening" per se. Commercial oriented vegetable production does not and has not done the job. I congratulate you on this new approach.

No, but Home Horticulture deals with some of the aspects in human relationships and the plant world.

I do try to cover this topic in part of my Intro. to Horticultural Science course.

No, we have a course Home and Garden Horticulture that covers a few aspects you describe, but mostly an indepth course for future gardeners.

No, though the human side of horticulture is a fascination that comes through in my lectures and is always a concern of mine when I travel. I might add that I am also a landscape architect and become frequently involved in behavioral questions.

Not as such—concepts are incorporated into several courses in Landscape Architecture and Landscape Design.

No, but our course Relationships of Ornamental Plants to the Urban Environment briefly touches on this topic.

Our courses are geared more toward plant use, as well as having a basic orientation toward physiology, plant breeding etc.

4. Do you see a need for such a course? Please comment.

No—13

Yes—37

Maybe—9

Other—6

Additional comments:

I do not visualize a need for the course you describe in our curriculum, where our emphasis is on production, management, and landscape design for commercial applications. I can see the importance of the described course for a curriculum offering Hortitherapy. I can also see the need for such a course for students planning careers in arboretums or public garden administration (such as at our nearby Callaway Gardens or Bellingrath Gardens) or municipal botanic gardens. At the present time only a few of our students go into those fields.

Ours is a small, traditional department. I don't presently see an urgent need. Perhaps in a larger department such a course would be useful.

We would not have such a need. I do try to cover some such material, but in the courses where such materials are involved—turf, indoor plants, woody plants etc.

Yes, but I feel the need is of equal or greater importance for non-majors.

Its content is spread among other existing courses.

Maybe, but not here.

Perhaps as a general education type class.

No immediate need. Has potential, however, for majors in plant science, landscape design and horticultural therapy.

Such a course could pave the way for attracting additional majors if it is opened to non-majors in their 2nd or 3rd semester of study. It would also introduce new concepts such as hort therapy.

A lot of older, non-traditional students are interested in pleasure gardening as opposed to commercial production, also a lot of clubs—garden, 4H, church.

It is our opinion that the topics you are talking about are more in the realm of sociology or horticultural therapy. They might fit into a general appreciation course.

Yes and no, let me explain. Yes, the topics you describe on the 1st page of your letter are nice and provide some background and "fun" aspects about hort. The course would be nice for an elective or in a liberal arts school. No, the topics make the course seem very philosophical and subjective. Points, about subject matter, could be argued endlessly. How would this course contribute to education of lack-luster students who don't get into the philosophies of life, mental health, etc.

There are a limited number of job openings in horticultural therapy in the state. Such a course would be very beneficial to a student interested in such employment.

There is clearly a need to educate on the breadth of horticulture.

We are covering much of the material you have outlined in several courses rather than a single course. I do, however, see that a course of the nature you are describing would be useful provided you can get the right person to teach it who has the broad interests that would be necessary. Since we are covering that material in other courses, I doubt that such a course would be necessary.

The course listed above [Plants, Man, and Environment] has been offered by the Department of Horticulture as a non-major class, no prerequisites. The class has not been offered for the past 2 semesters as the professor teaching the class has retired. The class may have contributed to our recruitment of new students into the various horticulture options within our department.

Yes, but I believe such a course should be offered as a general education course. If not, many people would not elect to take it and would therefore never be exposed to the potential satisfaction that horticulture provides.

I believe much of what you outlined in the course is covered in other general courses.

I would also target non-horticulture students particularly those in the humanities, arts, business, etc. These individuals need and would enjoy learning about the plant world as it affects them personally. That usually means plants in the landscape or in the residence.

For students in general it would be excellent.

Yes, however, we would likely not be successful in receiving sufficient enrollment at this time for this course.

Perhaps. Four years ago we did away with a gardening course and an indoor plants course (for non-majors). Now that our student numbers are going down we may once again have the resources to teach non-majors more aggressively. I do not see the need for such a course for plant science (Hort., Bot., Agron.) majors.

If we had the instructor capable of teaching such a course, it may be possible to get this type of course approved. It would definitely require a special type person with the interest and expertise to teach the course.

The course as described would be good to acquaint non-majors as well as majors with the importance of plants in their lives.

Not at our university, however, this may not be the case at other colleges.

It would seem beneficial (especially for ornamental horticulture students) to understand the special relationship that exists between plants and people.

Would be excellent for larger hort programs and those with a hort therapy approach.

Not in Hort. Could be useful in Psychology, Ed. Psych., Adult Ed. etc. In our case, the topics you mention are integrated in seminars and production courses as well as the design classes.

If humanistic attitudes and affects can be quantified—yes.

Much of what we do is governed either by the past or by larger social pressures. An understanding of these factors should lead to more enlightened (maybe even better) decisions.

This looks as if it would be best suited as a portion of introductory

horticulture courses.

Yes, but only in department when there are large numbers of students with interests in ornamentals—urban horticulture.

The content you described is absolutely essential in curricula in floriculture and ornamental horticulture and landscape architecture. I'm not sure it needs to be wrapped into one course. However, introductory level courses should give strong attention to such content.

We don't have room in our curriculum.

Perhaps, at least in a larger school where more students may be interested in applied, professional training. We could not justify such a course now.

I believe that a course aimed at developing an appreciation of horticulture and some of its practical or consumer oriented applications for improving the standard of living of people would be a useful course offering.

It is difficult to know if a need or demand exists unless a course is actually offered. We have not had any inquiries to indicate that students are interested in a course of this nature.

There is a real need for students in any field to become more aware of the effects of plants on people. With growing populations, high density housing etc. the role of plants in the environment is critical. Erosion and loss of agricultural lands to development also make an appreciation of plants critical to our future. Students of architecture need to be more aware of the value of plants to our quality of life. The school of education should require it as an elective.

I can see the value of horticulture in therapy but I question its value as part of a conventional horticulture curriculum.

This course should be good for people in all colleges. It should meet the humanity requirement at our university.

I definitely feel that there is a place for this kind of course, whether it be a course of itself or whether many of the things that you have mentioned are related in other courses. We definitely feel that these things are important.

A course relating the art and science of horticulture to human need is much

needed.

The course we offer [Sociohorticulture] is primarily a special topics course. In the last 3 years 18 undergraduate and graduate students have enrolled.

Horticulture is an art and science and should be aimed at and for people, its goal is to relate to humans and not to proliferate Madison. Ave. groupies, or so called marketing "guru's."

Yes—in horticultural therapy programs. Possibly as an elective for majors in arts and sciences education and for students in landscape architecture and contracting programs. Also in continuing education.

Possibly, where a complete curriculum with adequate staffing would make such a course feasible and practical to teach.

I believe there is more than just simple monetary benefits derived from horticulture. Students need to appreciate this more.

I believe it might attract a variety of majors from arts and sciences.

We do see a need for such a course. I do, however, feel that it might be appropriate to broaden such a course to talk not only about horticulture but agriculture in general. There is in any such course a need, particularly if it is aimed towards the traditional liberal arts student, to make these future leaders aware of the role which agriculture, not only horticulture, will play in the future. I am particularly concerned that in any kind of an overview course taught to non-horticulturists as an enlightenment effort, that if these individuals are going to be the future decision makers, that they be aware of the role and need for a strong world agriculture and its effect on world peace, the economy of the world, etc.

I see a need for such a course. However, our teaching resources are stretched and there are many subjects we see needs for. Perhaps as a compromise, this could be reduced in scope and covered as sections within other courses where appropriate.

It gives reason and incentive for being in the field of horticulture.

Many of our students are especially interested in Hort. Therapy, and this would be a step in the right direction.

As part of the broadening process, yes. Every horticultural major should be exposed to something like this.

Yes, but we are a very small department with heavy teaching loads already.

Not an immediate need as other courses more closely related to production have to be offered to students majoring in horticulture.

Yes, particularly to create an awareness of the broad impact of horticulture on society.

This subject matter should be a part of all courses in horticulture beginning with the introductory course. I personally teach in this manner. A separate course will, of course, better focus in this particular aspect of horticulture. In small schools such as ours, such a course would be difficult to justify comparative to a production course, hence the above approach.

5. Would you be interested in offering such a course to your students? Please comment.

No—28

Yes—25

Maybe—9

Don't know—1

Other—1

Additional comments:

Not at the present time because we do not have enough students with the appropriate interests, and because limited funds curtail the number of courses we can teach.

Not as the situation currently exists. Perhaps at some time in the future.

I don't think there would be enough in it for an entire course.

We presently are considering an upper division class aimed at non-majors and majors, emphasizing the role of ornamental horticulture in society today and in the future.

Inappropriate for our program which focuses on science students.

I would be interested in your final proposal as it might be a basis for changing our present course offerings.

Would want to review detailed course outline, bibliography, and syllabus.

We do not now have a similar course. The outline appears complete and directed toward people and plants.

Not at the present time because of reduced budgets and numbers of students.

I feel we already do partly in our introductory course.

Not at the present time, need to expand course offerings in the traditional production area first.

I'm not sure if I would offer this course to students mainly because I've got many other courses to teach. I also wonder how many hort students would be interested in such a course? I would think non-majors may be as much or more interested.

Once we get through the situation of declining student number and tight budgets, I would be very interested in exploring it again.

Do not know—may be a question of lack of or need for more personnel which is very difficult at these times.

Because we are covering most of the material in other courses, it is unlikely that we would offer such a course. However, there is no question that our curriculum is constantly changing and two or three years from now a course such as you are describing might in fact be extremely useful. This would be predicated on the idea that we might in fact combine some of the courses I have mentioned above.

I'm sure the course would be offered if we had an interested faculty.

I would rather see it offered to the students of the entire university and not limited to horticulture students.

As I said, much of this is covered. Any additional course on that topic is not justified in present school budgets.

Yes, and to students throughout the university.

Who would be qualified to teach such a course?

It would not be feasible at this time.

We could not staff the course. Recent offerings in Hort. Therapy have not been successful.

No, however, I remain open-minded and would like to have the benefit of what you might learn from your students when the course is offered.

Certainly, this type of information would be beneficial to our students. To a degree this type information is integrated into several of the production type courses. However, as stated above, this type course would require a special person and we do not have this person on our faculty.

The subject matter of your proposed course will become even more important in the future as computers give us more and more leisure time and as we have less and less natural green areas in our environment.

No, but will continue to use a part of such course in existing courses.

I would not mind offering it, but at present funding, work loads, etc. would make it impossible to do so.

No, our program is small and has identified other essential courses which would have a much higher priority when there is staff to cover them!

We do not have sufficient faculty numbers.

In our area of extremely harsh environments, by some standards, it would be good to know the implications on attitudes when crop failures occur. Do people garden for profit, break-even, recreation, etc.?

We are looking for a course that could be offered to Liberal Arts students who have had training in such things as history and sociology but not plant science.

Not at present.

Not at this time.

We are offering such a course this year as described above. [A greater concentration on some of these topics will occur in our new introductory course.]

Not likely. We do not have the staff nor does our student have the latitude to specialize in narrow practical areas.

The course has possibilities and whether or not it would be offered would be determined by a Departmental Curriculum and Undergraduate Affairs Committee.

Only if faculty were available. Our present faculty has responsibilities for teaching, research, and extension. Furthermore, promotion and tenure policies at a large university favor research over other activities.

We have not considered it as of this time.

Yes, while some of the topics in your list are covered in various horticultural courses, no one given course pulls all these together in a coherent thrust.

I think so. I think there will be interest in this course at our university.

Since I have a tremendous new teaching responsibility I cannot consider such a course yet. I probably could eventually teach such a course, but not for a while.

We would possibly be interested in offering a course if we had a completed syllabus, etc. for this. We would more than likely have to look at our entire program and usually this takes a year or so to implement, but we would definitely be interested in offering such a course.

I have felt the need for a similar course for sometime and have had in mind the development of just such a course.

I would. If I could have a format to work from etc. New courses with a mixed philosophical concept very seldom get off the ground in our neck of the woods.

Yes, however, none of our faculty would be qualified to teach this course.

Interested yes, but staffing will not permit all interests to bear fruit at this time.

Yes, but currently we already have rather heavy teaching loads in our department. Presently we (like most other university faculty) are being pressured into publishing our research results. Hence it would be difficult to find someone willing and capable to teach the course.

We might if someone felt qualified to teach it.

We would, in fact, be interested in offering a Humanistic Horticulture course to our students.

Yes, I would, but as stated above, it may not be possible. [heavy teaching loads]

At the present time we are barely able to keep pace with advances in horticulture technology.

I have a research extension appointment in urban horticulture. Thus I would be unable to teach it. I think the student interest is there, but doubt if the faculty commitment is present.

It would also be a great value to our public beyond the everyday classroom.

Maybe, but more to non-majors than to majors. It could be an excellent course for students of other programs not related to horticulture or to adults taking such a class.

Possibly, when additional resources are available.

6. Are you interested in receiving a detailed syllabus of the course when it is completed?

No—1

Yes—62

No answer—2

Additional comments:

Yes, you might change my mind completely.

I certainly have an interest in the field. I would appreciate seeing a copy.

Sure I'm interested to see what the course would entail.

I would very much like a copy for my file.

I would very much like to receive a syllabus of the course you are describing.

I am sure we would find it most useful.

Most definitely.

I would appreciate receiving a copy. Perhaps, it would give me a different perspective.

Perhaps portions could be implemented in our ongoing programs or through other means, i.e. community university, extension, or arboretum programs.

I would welcome an opportunity to evaluate your effort.

Possibly I have overlooked some important aspects of this type of course.

Keep us in mind and send the syllabus to me.

We would definitely want to receive a detailed syllabus when it is completed.

Very much.

Yes indeed. It would help the thought process.

I would like to learn more about this area of horticulture.

7. Please feel free to make any additional comments or suggestions. Use another sheet if necessary.

I can see that the course would also be good for horticultural county agents and teachers. However, the fact remains that most of our students go the commercial route upon graduation.

Students will still need to be exposed to basics of horticulture. As I perceive it, your idea of the course should come later. It seems much more applicable to urban horticulture than rural, production type horticulture. Interesting though.

I appreciate your efforts. On our campus I claim that it is academically important to know the trees one walks under going into a building to learn about paintings or music as to learn about those subjects. I think it is as fine an art! I have a weekly column in the Sunday paper as well as a local television program, and I try to bring out some of the ideas you are espousing for your course. I wish you well in your endeavors.

Perhaps you should consider floriculture historically as well as in present times. European culture, for example, is deeply involved, and our country is changing. If you aim the class at majors, I would suggest some coverage in the realm of how to develop and utilize this resource in an economic context. You may want to check with some of the professional and trade organizations. Slide sets on garden history, films on the role of ornamentals in daily life, tissue culture's impact, etc. are available. Just a personal feeling, but Humanism and Humanistic are too close for comfort. Connotation, even denotation exists which, at least at first glance, may be unsavory for some people. Good luck with your syllabus. This is a class whose "time has come."

I think the course is worth developing but care must be taken to insure adequate science and minimize pseudo-science.

The English use a phrase, Amenity Horticulture, which you may be familiar with, and I believe has a similar connotation as our humanistic concept.

Good luck on this project. It appears to merit further consideration.

We had a major in hort therapy for a while but we could get hort therapy jobs for only about 2% of those student majors, so we dropped it. We do have graduates in city parks departments and community gardens which are similar. Under point 3 I would include pleasure gardening. Under point 5 I

would include free standing or lean-to greenhouses. In our introductory course we cover a lot of your syllabus material.

What would you use as a textbook for the course?

The course you are describing sounds like an interesting one. We will look forward to hearing from you and receiving the syllabus. I am sure this will stimulate us to thinking about the possibilities of such a course. Good luck in your studies.

I do not like to see you use the term "humanistic" as a prefix to the word "horticulture." "Humanism" is a doctrine/mode of thought which implied that there is no God; only human thought and action have been involved in the "evolution of humankind." I think that you wanted to use the term "humanitarian" or "humanitarianistic" horticulture. Item 5 is entitled "accessibility" when in fact it probably should be called "barrier-free landscapes/gardens." In evaluating the proposed course it would be helpful to know the titles of your recommended texts or reading assignments. I look forward to seeing your course syllabus.

I believe such a course has the potential to stimulate considerable interest in horticulture and might very well be worth several million dollars to our industry over the next several years. It could increase interest in horticulture as a hobby or open many individuals eyes to the career opportunities that exist. I hope you can pull it off.

Your course is more specific as to its goals and objectives as compared to a more general course dealing with agriculture and society. That's what I've been thinking of organizing. Other universities and colleges of agriculture have developed interdisciplinary courses.

Are there any solid data on which to base such a course? I doubt it!

Horticulture has some of the greatest potential for enriching lives of college students that can be offered. Alas, it is so difficult to capture them!

I do not like the title, although the university has offered in the past such courses as humanistic botany (botany department). It seems to me that horticulture is humanistic by definition. We have offered successfully in the past a course called floricultural science (for non-majors) to residential students and to continuing education students. We dropped the course due to our inability to staff it when an instructor resigned and due to declining

enrollment in the continuing education courses (at night).

I have no doubt that such a course would be popular. Also attractive, would be "how to" horticulture offerings. With current staffing I don't believe we can expand. With a good syllabus/outline there is always the possibility for interested faculty or grad students to offer such a course in the Evening College for a fee.

Humanistic Horticulture would be useful as a short course for training extension horticulturists/master gardeners/etc. I would be reluctant to assign responsibility for teaching it in our present curriculum for horticulture majors without filling some other needs.

I'm concerned that such a course will be built on opinion—survey type answers—which may be misleading. Are attitudes reproduceable with scientific basis?

This is a most interesting project. Good luck as you proceed.

Your course is a good idea. All members of the landscape hort. staff here are very concerned with the humanistic aspects of horticulture. I encourage you to carry on your efforts. Your thinking is very much needed.

Perhaps the essential subject matter could be taught in a 3 credit hour course (quarter basis)? Course titles are important in attracting student interest and administrative support. Is the title the most appropriate for the course? This course might be more appropriate as a university service course than a course for plant science majors. Prerequisites if any? Best wishes with the project. It can be a very useful one.

Suggest you contact the department of landscape architecture. They offer two courses that have some of the topics you list.

Sounds like a new approach at a time when student interest may be fading in other traditional approaches. Worth the effort.

Stress is a major problem to be faced in our style of living. Malls, indoor gardens, planters, etc. have been shown to reduce stress in our computerized, mechanized and automated world.

When preparing the syllabus keep in mind that some schools operate on semester and others on quarter system. Is there a book on the market for

such a course? It is hard to teach a course from references at the undergraduate level. Good luck.

I think this is an outstanding project and I hope that you get a lot of good response. If there are any follow-up questions that you have, please let me hear from you.

The course which you describe seems excellent. I believe there is a great need for such a course.

All my luck and well wishes.

Good luck!

Such a course as Humanistic Horticulture may have value in Landscape Architecture as well as Ornamental Horticulture programs.

I believe we, as horticulturists, need to make society in general more aware of the benefits derived from ornamental horticulture. Since a dollar value can't be placed on some of the benefits derived from plants, it is much more difficult to convince others of their importance.

I think it is a good idea and hope more interest in this area will be generated. More scientific research (as opposed to case-studies) is needed.

I think an integrated approach to all areas of horticulture would improve student understanding.

We are interested in the application of horticulture to assist recovery of psychologically disturbed patients and as an avocation for senior citizens.