SYMPOSIUM:

THE ROLE OF ARBORETA & BOTANIC GARDENS IN PRESENT DAY COMMUNITY LIFE."

LOS ANGELES STATE and COUNTY ARBORETUM

LASCA MISCELLANEA

VOL. 6. OCT. 1957

COUNTY OF LOS ANGELES

INTRODUCTION

The following papers were presented in a Symposium on "The Role of Arboreta and Botanic Gardens in Present Day Community Life" which was held at the Los Angeles State and County Arboretum, July 17, 1956. The Symposium was a part of the annual meeting of the American Association of Arboreta and Botanic Gardens.

The eighth and ninth papers included in this publication were presented at the dedication of the Arboretum Administration Building and Gatehouse on December 14, 1956.

The papers are: Page

THE MODERN ARBORETUM

F. W. Went

We can get the best perspective of a modern arboretum and its organization and function by considering how arboreta and botanical gardens came into being, evolved and changed through function.

Gardens developed as soon as man emerged from nomadism to an agricultural existence. The first gardens were purely utilitarian, where a few herbs, vegetables and fruit trees, were grown near the dwelling. This can still be seen among the agriculturally primitive peoples. The Arabs in the Sahara, living in oases, depend for food almost exclusively on dates, but between the dates they have small kitchen gardens with tomatoes, eggplant, squash, horse beans, chili pepper, corn, all in small numbers, and a few fruit trees such as fig, peach, apricot, lemon, pomegranate and grape, and as herbs mint, absinthe, marijuana. Apart from the wild oleanders there are no flowers.

Not until a considerably higher level of economic development has been reached, does the garden become less purely utilitarian, and starts to contain ornamental and flowering plants.

With the collapse of the Roman Empire the pleasure gardens, which were so highly developed in Rome, seem to have disappeared completely. Since the transport system also was defunct, which made exchange of herbs and medicines extremely difficult, the need for the cultivation of medicinal plants in many localities became much greater, and the monastery gardens grew into real collections of medicinal plants. If the brother in charge of the garden was very active, he increased the collection of herbs and vegetables, and he may have slipped in a rose or other beautiful flower for the image of the Holy Mother, or to be used in church ceremonies. Many of the introductions into the monastery gardens came from Italy, brought by returning pilgrims.

In a description of such a monastery garden at St. Gall, Switzerland, in 820 A.D., it was said that "lilies, roses, mints, and fenugreek grew in one bed; in the 'Herbularius' there were sage, rue, gladiolus and cumin; in the vegetable garden (Hortus) there were onions and garlic, dill and beets, parsnips and cabbages." (Reed 1942, p. 116).

The Renaissance, which marked the beginning of so many intellectual developments, also was the beginning of the Botanical garden as we know it at present. It was a necessary adjunct to the teaching at the Universities which were then just starting. Usually there was one professor of Medicine, whose main task was to teach the future physicians to know the drugs and their uses. For this reason the first botanical gardens, such as the papal one in Rome, which existed even in the 13th century, were really medicinal herb gardens, where the professor took his students to teach them the names of the

herbs and their uses. The plants commonly encountered in these first botanical gardens can be found in the so-called herbals, sort of text-books of Botany, which prior to the invention of printing were present as manuscripts in the libraries of Universities and monasteries.

The first printed herbals were exclusively catalogues of medicinal plants and their uses, and were very poor both as far as plant descriptions and illustrations were concerned. It requires a vivid imagination to recognize most of the plants in these herbals. One herbal, the Pseudo-Apuleius, was printed in 1472 by de Lignamine in Rome. It was not an original work, but a reproduction of a fourth-century manuscript, copied and modified over and over again until little of the original information was left. Fortunately within the following 20 years the mere possibility of purchasing a printed herbal created a demand for a technically better product. This was fulfilled by the Ortus Sanitatis, printed in 1484 in Mainz, and translated soon after into German. The following 60 years saw more original herbals being printed, and culminated in the magnificent herbal of Fuchs of 1543.

The evolution of the herbals also reflected the growth of the Botanical Garden. Many trends can be recognized:

1) The arrangement of the plants became more and more systematic, with the Compositae, Umbelliferae, Labiatae, grasses, and other natural families being planted together, reflecting the development of a system of classification.

2) The garden collection was no longer restricted to medicinal and culinary herbs, but also included wild plants without economic importance, reflecting the trend towards a general taxonomy.

3) Although the main focus of the botanical garden remained the herb and annual garden, usually located in the center, trees and shrubs became more and more a part of the garden, being planted around the sides. This can still be seen in the oldest Botanical Garden now in existence, the one in Padua, begun in 1515. This marks the beginning of the Arboretum.

4) More and more, exchange of plants between botanical gardens in different countries occurred. Travelers were urged to bring plants and seeds from far countries. In this way for instance Clusius, who founded the Botanical Garden at the University of Leiden in 1594, gathered there a very complete collection of bulbous plants, which led to the Dutch bulb industry. He was in regular correspondence with 300 collectors all over the world, who sent him new plants.

5) In northern climates in connection with the importation of plants from lands with different weather, it became necessary to build structures to protect subtropical plants from frost. Thus the orangery or conservatory developed, in which oranges, olives, myrths and other mediterranean plants could be kept alive over winter. Then, when sea captains started to bring tropical plants with amazing flowers, such as orchids, or sensitive plants, to their kings or patrons, greenhouses became necessary, and were developed in the 17th and 18th centuries.

While in the 16th century a Botanical Garden still could contain most of the plants known to botanists of those days, the rapid development of botanical knowledge of plants from other parts of the world, made it impossible to have an inventory of all plants in one living garden. It is interesting to see how, for example, the collection of plants in the Leiden Botanical Garden increased from 1000 in 1600 to 4000 at the end of the century. In the 18th Century however its collections began to lag more and more. This was accelerated especially after 1735 when Linnaeus started to describe more and still more tropical plants. The impossibility of a Botanical Garden containing a complete collection of all known plants led to a shift in emphasis from living specimens to dried herbarium sheets. The herbarium, which could hold a complete plant inventory, now became the principal tool of the taxomonic botanist. At the same time a shift in botanical interests occurred.

Towards the end of the 17th Century Plant Anatomy, and in the 18th Century, Plant Physiology, became branches of Botany, and thus the importance of the Taxonomic Garden as the main tool in the teaching of Botany also waned. In the beginning of the 18th Century, Boerhaave still gave in his text book the following definition of Botany: "It is that branch of science, through whose happy pursuit one learns with the least difficulty the largest number of plants". Starting with the 17th Century there were usually already two professors of medicine, one for clinical medicine, the other for pharmacology, who taught also Botany and Chemistry. The latter would teach Botany during the summer semester. He would take his class in the garden, often starting at 5 a.m., and, walking from plant to plant, named all the names he knew of each plant, with its medicinal uses. This was all done in Latin, and thus students, like Linnaeus, could travel from country to country whether he knew the local language or not and attend the classes in Botany.

Instead of growing with the development of Botany, most European University Botanical Gardens remained static, and lagged further and further behind. Out of sheer inertia, they hung on as less and less important adjuncts to the Botany department, but students were seldom seen in the gardens any more. In old University towns without parks, they gradually degenerated into public parks, and nurses with perambulators replaced the students.

This development explains why in the new world usually no Botanical Garden was created when a Botany department was begun in contrast with old world Botany departments. Today many examples can be given of European Universities, where more than half of the Botany Department funds go to the ineffective garden, with a small and poor Botanical Laboratory maintained with the remainder of the budget.

The developments in the Leiden Botanical Gardens illustrate the changes in botanical gardens which occurred with changes in methods of teaching botany. As mentioned earlier, in the beginning there was only one professor of medicine, but by 1681 a resolution was passed by the trustees of Leiden University that "there shall be four medical professors, which have to give instruction in Professio Anatomica, in Praxim Medicam, in Artem Chemicam and in Artem Botanicam." The botanical teaching was further specified: in summer the Institutio Botanica

is given, while in winter the students receive instruction in what we would now call pharmacognosy and pharmacology. Hence even at that time there already was a full professor of botany. (Veendorp and Baas Becking: Hortus Lugduno-Batavorum).

While originally the botanical garden was all the professor needed for his teaching, botany developed rapidly to such an extent that it would have been exceedingly expensive to have kept pace with the botanical garden. About that time the garden started a growth by itself, centered around the supervisor or "Hortulanus". It became more of a show-place, or a collector's place. One botanic garden for instance became famous for its Bromeliads, another for its Cacti and so on. The botanic garden became the public showplace of the university and as such the Hortulanus became so important and powerful that the professor of botany was the Director in name, but was only allowed a small voice in what was to be grown.

The twilight of the University Botanical Garden did not mean that the Botanical Garden no longer had any legitimate functions in the 19th and 20th Century society. Its functions, however, were taken over by new institutions: the Experiment Station field plots, special plant introduction gardens, experimental greenhouses, private gardens, and a new type of super-garden, of which Kew, Buitenzorg, New York, Brooklyn and St. Louis Botanical Gardens are the prototypes. They developed without connection with a University, but were usually government supported. They are not narrowly limited to taxonomic gardens, but serve the public, Botany, and Horticulture equally. They combine: information to the government and public; education and training of gardeners and the public; demonstration of desirable plant materials; introduction, testing and distribution of new plants; development of new horticultural materials; they provide a center for horticultural interests, supply facilities for testing of plants and they perform research on plants in general. In addition to all these functions these gardens are beautifully landscaped, and are an important link in the park system of the city in which they are located.

These new Botanical Gardens I would like to call functional Botanical Gardens. They perform a really important function in present-day society, as their growth and support by the public testifies. There are a number of smaller or fractional Botanical Gardens, which perform only some of the functions mentioned above. But all the successful ones grow and evolve together with the growth and development of Botany and of Society.

A very instructive case history can be given for the Buitenzorg (now Bogor) Botanical Garden in Java, Indonesia. This garden was founded in 1817. For the next 30 years it was important in connection with the development of knowledge of the flora of the Indo-Malaya region. It became more and more the center for introduction of plants from other parts of the tropics: Cinchoma, Hevea and many other plants were first brought into the Archipelago through the efforts of The Gardens. With the appointment of M. Treub as director in 1880 the development of the Buitenzorg Botanical Gardens became almost explosive.

It became the scientific center of the Dutch East Indies and the Mecca for botanists all over the world because Treub organized the publication of flora's of the areas of Buitenzorg. These included not only the higher plants, but also mosses, ferns, myxomycetes, algae and other plant groups. The Gardens organized phytopathological and other research on cultivated plants. When a Department of Agriculture was created in the Dutch East Indies in 1905, the organization of the Buitenzorg Botanical Garden was taken over lock, stock and barrel. With Treub's retirement as Director of Agriculture in 1909 the purely botanical and strictly scientific work of the Department was detached and the garden was reconstituted exclusively as a Botanical Garden. Unfortunately, with the removal of all applied work, the Gardens were emasculated, and never again rose to the important stature they had when they were complete and functional under Treub. In 1939 Baas Becking instituted a major reorganization of the Buitenzorg Gardens, but due to the war and the transfer of sovereignty to the Indonesian Government, the hoped-for rejuvenation has not materialized.

We have seen that in the narrowest sense a botanical garden or arboretum is a living collection of plants. However, as such it is hardly necessary any longer from a purely botanical point of view. Only for the study of palms, gingers, cacti, and certain other plants which cannot be properly studied in the form of herbarium material are such collections important, and thus the cactus collection of the Huntington Botanical Gardens in California, or the palm collections at the botanical gardens in Java are very significant.

The current expansion and growth of horticulture, floriculture, and botany should be considered and should be reflected in the arboretum or botanical garden. Although it may not be necessary to have all aspects of this growth represented, because other institutions may have taken over certain of these functions, yet the following points seem to be entirely essential in an effective arboretum.

In our Southern California area especially, plant introduction is of major importance. Until now, no systematic introduction of plant materials from regions with comparable climates has been carried out here, in contrast with the introduction of plants from all over the world in the eastern United States and in the northern European countries with their very different climate. There are still many, many spectacular plants which should be introduced here and can be expected to become excellent materials for gardens or street plantings.

In connection with introductions, acclimatization has to be considered. We know remarkably little about what acclimatization of plants actually means, but it remains a fact that plant materials, as introduced, very often do poorly until they have been grown for one or several generations in the new climate. This may be partly a question of selection of the best types from a population of plants which is introduced as seed material. In this connection it should be mentioned that selection and hybridization of the most desirable plants are important functions of a modern arboretum.

By having complete records of the behavior of the plants from the

seed stage, and by testing the material under different conditions, an effective study of the best cultural conditions is possible and will lead to a better appreciation of where and how to grow these plants. In this connection the plantings themselves will be demonstrations of the possibilities of the new introductions under the new conditions.

The educational function of a modern arboretum is of prime importance. This includes education of the gardening public. For instance this is carried out very effectively at the Brooklyn Botanical Garden. Education of maintenance gardeners, which particularly in southern California have no place to get much information and training, is another important and essential function. These functions are different from those of regular schools and colleges and are related more to education in a trade school.

With the remarkable growth in recent years of horticultural and plant culture societies, an arboretum can also be a center of activity and coordination of horticultural societies. Therefore at the Los Angeles State and County Arboretum the different groups, such as the herb society, the rose society, Begonia society, and others who are interested in some of the plantings at the arboretum are welcomed. It is hoped office space for administrative functions of these societies can be offered.

Probably the most important function of a modern arboretum is research, without which no future developments are possible. Without research an arboretum or botanical garden is a static body but through research it is possible to contribute to the further developments of horticulture and other branches of botanical science. It is hoped that not only much research will be carried out by the staff of the Los Angeles State and County Arboretum, but also that it will be possible to accommodate research workers from neighboring, or foreign institutions whenever the facilities here will make them useful for their research.

Here the research on fire resistant plants, on turf grasses, and other subjects are good examples of valuable research conducted by an arboretum.

In conclusion it is seen how the Los Angeles State and County Arboretum has already gone a long ways in the direction of a really modern and functional arboretum and it is hoped that it will be able to keep pace or actually lead in future developments in the fields of botany and horticulture and also that it will be able to keep pace with the rapid development of southern California.

DISPLAY IN THE DEVELOPMENT OF AN ARBORETUM

R. J. Seibert

Webster's Dictionary states "an arboretum is a place where trees and shrubs are grown for scientific and educational purposes".

If general public appeal for the institution be desired, there should be added to that definition, "effectively displayed for the enjoyment of the public".

Statistics tell us that there are 40,000,000 home gardeners in the United States. All of them are interested in plants and how effectively to use them with specific reference to their own homes. Most of the balance of our 160,000,000 Americans consciously or unconsciously enjoy seeing plant life if it puts on a good show.

Arboreta and botanic gardens are maintaining collections of plants suitable for the area which they serve. In addition, they are engaged in locating and testing an ever wider range of new plants for suitability to their area.

The Arboretum may be likened in some respects to experimental stations--what is the difference? Essentially, I should say that the experiment station devotes its effort and research toward the improvement of varieties and culture of our economic plants, with demonstration being the keynote of public relations appeal.

The Arboretum or Botanic Garden is concerned with a much wider range of plants including ornamental, potential economic research and classic study plants as well as curiosities. In many cases, both hardy and hot-house plants are grown for exhibit.

Here is the basic source of information concerning the plant kingdom. Education is of paramount consideration and display the keynote for public appeal.

The aesthetic value of plants always seems to me to be a highlight of the arboretum and botanic garden and I've always been concerned that this may not mean much to a visiting public afflicited with "buck" fever, spelled "D-O-L-L-A-R." However, the facts that home gardening is one of our leading American hobbies, the nursery industry has boomed like never before, and gardening magazines have larger circulations than ever, tell us that the aesthetic beauty of plants is very important. New homes are being beautifully planted and old homes are being improved through improved landscaping. Garden clubs are growing in size and number, plant societies likewise, and even the men's garden clubs have reached powerful status in this country.

All of these facts have taken ornamental plants out of the realm of unessential and into the broad picture of our local and national

economy.

No longer can the arboretum or botanical garden feel aloof to the public. We are in the public relations field just as surely as is the national league baseball team, industry and show business.

Ask any visitor to an arboretum or garden what he most enjoyed and he will tell you the display of this or that. Or that he was disappointed by a particular display.

Much of our work and effort must sooner or later translate into display if we are to continue to gain the appeal of the visitor and the support of his voice.

RESEARCH AND THE MODERN ARBORETUM

William S. Stewart

Scientific research centers around the word "new". It results in new knowledge, not lore, but established reproducible data or facts. Research consists of the formulation of new hypotheses and then testing the validity of these by experiments. It consists of producing new ideas whether they are new practices or descriptions of new plants. Research is the systematic exploration into new realms of thought.

The present day is truly "The Age of Research" as the value of research is being recognized by agriculturists, industrialists, and civic leaders alike. According to the National Science Foundation Director Raymond Ewell, the United States as a whole has earned back $2,000 to $5,000 for every $100 spent for research and development in the past 25 years. It is no wonder that scientific research has become an industry in itself and perhaps is the key industry. In agriculture it was research that led directly to the development and use of herbicides and agricultural chemicals, now a $400 million dollar a year business. Also, according to Dr. Ewell: "Industry executives who once minimized outlays for science because they were hard to justify to stockholders, now play up research budgets as a powerful magnet for new capital. Reason: securities analysts and bankers have come to regard a company's research program as one of the most significant yardsticks of its future growth and ability to keep up with -- or outdistance -- competition". In view of the recognition of the value of research it is of little surprise that research along with education constitutes the two major objectives of the modern arboretum.

Two kinds of research are recognized, basic and applied. Basic research is non-programmed research. It is research which is not necessarily directed toward a practical objective but arises from intellectual curiosity. It is well known, however, that frequently basic research leads to important and valuable practical applications. In contrast to basic research, applied research is directed toward a practical application. "Development" or extension of new ideas is a phase of applied research. Applied research, as well as basic, can be discouraging unless the researcher is persistant and patient. The development research program of the du Pont Chemical Company operates on a budget of $70 million dollars per year. In their applied chemical department they find that about one-third of their studies are outright failures; one-half are successful in the laboratory but in practise prove impractical and that less than 10% go to the manufacturing division for development, and of these only a small fraction of these go into production. It is apparent that persistence and patience are necessary in research.

The educational program in an arboretum or botanical garden conveys, by teaching, the existing knowledge and the new knowledge established by the research program. Research is recognition, and in a sense, creation of the new knowledge.

The research program for an arboreta or botanic garden should be balanced between basic and applied research. It is important to have basic research in order to add fruit to our tree of knowledge. It is equally important that in public supported institutions some research be directed toward the solution of community problems or toward making practical contributions to the community life. If possible, an ideal division of the research budget would be 50% for basic studies and 50% for applied. Industry seldom attains this proportion; generally only 5% to 10% of the research budget is alloted to basic research. Universities on the other hand may devote 100% of their research program to basic research. At this Arboretum basic research is now in progress on effects of air pollutants on plant growth, translocation of plant hormones, and the power of movement of plants. Applied studies here are directed toward plant breeding, herbicides, garden practices, fertilization, and applications of plant hormones to rooting cuttings.

An ideal research project is one which requires basic research to obtain a practical solution. Examples of such projects here are: the fire-resistant plant study; descriptions of new species, and, introductions of new plants for southern California.

Dr. Irving Langmuir, the Nobel prize winner has pointed out that "Only a small part of scientific progress has resulted from a planned search for specific objectives. A much more important part has been made possible by the freedom of the scientist to follow his own curiosity in search of truth".

In conclusion it may be noted that there is no monopoly on new ideas and that research, in the ultimate, resolves itself to an individual who conceives the <u>new</u> idea and who has the activity, interest, and curiosity, to try out the idea.

In closing these remarks two quotations by Louis Pasteur are appropriate. These are:

> "Without theory, practice is but routine borne of habit. Theory alone can bring forth the spirit of invention."

> "Nothing is more agreeable to a man who has made science his carreer than to increase the number of discoveries but his cup of joy is full when the result of his observations is put to immediate practical use".

THE UNIVERSITY BOTANICAL GARDEN

Mildred E. Mathias

The university botanical garden, like others we have heard discussed, is a collection of living plants maintained for the "advancement and diffusion of botanical knowledge." It has a long history and we have been told how gardens were used for teaching of medicine as early as the 12th century. Just sixteen years after the founding of the garden at Padua in 1545 it was being used for teaching demonstrations with living plants. Most universities have supported a botanical garden at some time in their history but often these have given way to "progress"- the land has been needed for more buildings for more and more students who have learned less and less about living plants. There are gardens maintained by universities from California to Harvard, from Oxford and Utrecht to Tokyo. These gardens vary considerably in size and activity. A survey of a dozen private and public university gardens in this country reveals a variation in size from twelve to 1200 acres, in number of species and varieties from 700 to 8000, and operating budgets ranging from $2400 annually to $90,000. The staff varies in number from one to 25; in all but two of the gardens it is less than 20. Only three gardens have display greenhouses. It is interesting to compare these figures for twelve university gardens with the figures for twelve gardens which are not directly connected with universities. Some are supported by taxes, others are privately endowed. Some have university connections but their primary purpose is display of plants. These twelve gardens, selected at random, range in size from four and one-half to 1700 acres, in number of species and varieties from 700 to 12,000, and report budgets from $15,000 to $400,000 annually. The staff varies from seven to 150; in all but three of the gardens it is over twenty. Six of the gardens maintain display greenhouses. We see that the university garden is in the same size range as the non-university garden with respect to acreage and number of species and varieties. On the surface it would appear to operate with a significantly smaller staff and a lower budget. However, the university garden, in contrast with the non-university garden, often has the services of a number of specialists on the teaching staff and is associated with a reference library and herbarium. These costs are not listed as budget items for the garden. These figures do reflect the cost of placing the primary emphasis on the proper display of plants. The creation of a park effect is expensive.

The primary function of a university botanical garden is teaching. It should be under the direct supervision of the department of botany with advice and consultation with the department of horticulture. The garden serves as a laboratory for students of various disciplines with its display of the diversity of the plant world, both as to kinds of plants and to plant associations. Teaching is its most important function and a garden is an essential for the needs of the department of botany. The beginning student sees here a display of the plant kingdom from the algae floating in the pond to the flowering plants; he becomes acquainted with plant associations ranging from the xerophytes in the dry areas to the common mesophytic plants along the stream; he sees groups of succulents,

ferns, conifers, plants for shade and plants for sun; he becomes familiar with these different kinds of plants and their interrelations; he studies the plants of economic importance - lumber trees, fiber plants, spice and perfume plants. The garden is not only a place for class and individual study but a source of plant materials to be brought into the laboratory for illustration and experiment. Continuing effort must be made to maintain, to increase, and to display more effectively the diversity of plants in order to improve the teaching function of the garden. The instruction of the college students will promote an awareness of plants by the future leaders of the community.

A second function of the university botanical garden, and in part associated with the teaching function, is to provide plants for research primarily in the many fields of botany and horticulture. It is a source of materials for investigations in plant anatomy; it is an area for experimental testing of chemicals for weed control, disease and insect control, and plant nutrition. The garden is a testing ground under recorded conditions for new plant materials.

A university garden must also perform a public service. If it displays a wide variety of well grown, correctly labelled plants it is a valuable asset to the university and to the surrounding community. The display must be attractive; the roads and paths must be maintained. The esthetic appeal of the garden for the general public is important in the promotion of good will toward the university. It is a park for all students, an oasis in the middle of a busy campus. It is a place for nature walks for youth groups, adult education classes and garden clubs. The art student uses it as a site for sketching and painting, a source for design. The theater arts student employs it as a setting for his movie studies. The zoologist find it an animal refuge in the middle of an urban environment. The teachers in the neighboring schools use it for their class excursions. The local nurseryman sees new material which he can employ in his designs. Government agencies, ranging from the customs service to the public health service, find it a source of material for verification of identifications or for new drug plants. The garden is visited daily by many individuals who come to learn and also to enjoy the peaceful surroundings. It is focal point for plant information for the whole community.

Traditionally the botanical garden has been an area set aside as unique from the rest of the university campus. Often it is too far removed from the main campus to fulfill its teaching function. The university is a center of learning and we should make every effort to utilize the whole campus as a botanical garden. We should encourage the use of a wide variety of plants in the general landscaping. We should endeavor to label this material in an attractive and informative manner. In this way we can hope to educate many more than those who accidentally wander into our fenced areas or register for our botany courses. We may find this an additional service of the university botanical garden - an extension of its activities to include the whole campus and to make the botanical garden a more integral part of campus life.

THE PRIVATE BOTANIC GARDEN

Philip A. Munz

As one runs through a list of the botanic gardens of the United States and Canada he is impressed by the fact that relatively few are really private, in the sense that they receive none of their income from public sources. Some, like the Arnold Arboretum, New York Botanical Garden, and the Strybing Arboretum, operate on land really owned by cities and avoid taxes on the land. They and others may receive a considerable part of their annual income from park funds of their various municipalities, thus permitting the income from actual endowment to be used for more strictly botanical and research projects and less definitely for display. So one finds every conceivable arrangement between institutions that have begun on a strictly private basis, either as property of a family or on endowment, and more or less publicly supported ones like parks, colleges, universities and the like. But few have remained entirely privately supported; for examples in our own neighborhood, the Huntington Botanical Garden, the Santa Barbara Botanical Garden, and the Rancho Santa Ana Botanic Garden. Yet so prevalent is the idea of tax-support that we continually bump into it at the Rancho Santa Ana Garden. We have, for example, two or three doors opening to the outside of our main building other than our general entrance and bearing "No Admission" signs, since they enter rooms used by graduate students or for research, and the general public need not go into them. Not long ago a couple of the fellows heard some men outside their door say, "No admission! Well, I guess we support this place with our tax-money and can go where we want," and the door was burst open to reveal the two students working within.

Well, what about privately endowed institutions? Have they any advantages? Are they at a disadvantage? Does their function possibly differ from that of publicly supported institutions? It seems to me that the fact that so many gardens that have begun on private endowment have found it desirable to go over in part, or in some places almost completely, to tax-support answers part of our question. The decreasing income-rate from endowments over the past decades and the increasing rate in property-tax and general expense, both mean that an endowment of a given size cannot accomplish now what it did a generation or more ago. As to function I cannot see any general distinction between botanic gardens supported in one way or another. To me it is not so much a matter of where the income comes from as how it should be most usefully spent. No institution that amounts to anything, i.e., no institution that has a live ambitious program, has all the money that it feels it could use wisely and to good advantage, no matter whether that money comes from governmental or private sources or both. I therefore believe that the important thing for any botanical garden or arboretum to do, is to select an area in which to operate, and by area I do not mean a geographical site. In other words, with the large amount of work to be done on plants and with the more or less circumscribed income that almost every institution has, it is highly important to determine what kinds of plants are to be grown, how they are to be used after they are growing, what educational program

is to be maintained, what type or types of research are to be undertaken, what kind of library and herbarium are to be built up and maintained. No institution I believe can be world-wide in scope, unless possibly some time our national government establishes and resources such a one.

We have in fairly close proximity in southern California five institutions that begin to illustrate something of what I mean; two are largely tax-supported, three are privately endowed. There is some duplication of effort, but really relatively little. Each one can do a distinctive job for the people of California and beyond, and each one is to a large extent doing so. Relations between these institutions are entirely cordial and cooperative. Let us examine the situation briefly. Two of these gardens are concerned with native plants of California, namely the Santa Barbara and the Rancho Santa Ana Botanic Gardens. The former is located near the sea, where with its cooler summers it can more easily maintain coastal plants than can the latter at Claremont, where, however, some of the desert and interior species grow better than at Santa Barbara. The two are far enough apart so that they serve different local communities. Both happen to be endowed institutions, both have some affiliation with college or university neighbors and serve and are served by them. The other three institutions work more with exotic plants; the tax-supported UCLA garden near the coast has relatively less frost and cooler summers; the endowed Huntington Garden at San Marino has affiliation with various societies like the Camellia Society and specializes in that area as well as in succulents and other groups. The tax-supported State and County Arboretum in Arcadia also has affiliation with groups like the Herb Society and is receiving private as well as public funds. It has been introducing many novelties from South Africa, Australia, and other regions. It has also some interesting historical buildings that will serve to attract and educate the public. Here we have five gardens, then, some publicly, some privately supported, but doing quite different pieces of work. At Claremont (in cooperation with Pomona College) is being built up the strongest herbarium of California and west American plants south of Stanford University and an outstanding library in botany and horticulture. In affiliation with the Claremont Graduate School work is offered for the master's and doctoral degrees. At UCLA a very strong graduate program is under way. At both places graduate students are available for service in the botanical gardens and receive some of their training in botany through such service. In other words, in many ways these five institutions are doing different things and I cannot see that the line of demarcation depends particularly on whether their income is from private or public sources.

I do believe, however, that there is one advantage that the privately endowed institution has over the tax-supported one. It can carry through its operations with less red tape. It seems inevitable that publicly maintained institutions must have certain formalities in procedure that are time-consuming and often have a certain disadvantage. Take the simple matter of book orders. A rare-book catalogue comes to us in the morning mail. We decide at once whether we want certain items or not and get out an air-mail order, or telephone to New York, or cable to London that same day. In many large institutions which have more formal ways, such orders have to go through a librarian, often through a library committee and other channels; and days or weeks are lost. Mean-

time the books are sold. This is a minor matter, but it illustrates what I mean. In some cases, perhaps, a similar situation carried over into larger matters. It is my general feeling that a private institution can sometimes carry on research in more basic, less immediately practical fields than may be the case in publicly supported institutions. Perhaps this is not so true as it used to be. At any rate, to advance knowledge and education, we should avail ourselves of the means obtainable, whether from private or public sources. In our present tendency towards socialization private funds perhaps cannot do as much as they once did. Yet even recently we have seen the establishment for the public of a botanical garden in Pennsylvania which had been building for many years as a private concern. Now it comes to the front with means away beyond those of any other botanic garden in America, private or public, and yet its resources are from a single family, showing that there are still some private fortunes in America.

Perhaps in the few moments I have left I may be pardoned for digressing and putting on record a few comments that are not part of the topic assigned me, but none the less pertinent in such a symposium as that of today:

(1) Scientific materials and records. So often when a new botanical garden is established no careful record is kept of the sources of seeds or plants used, or oftentimes these come from the trade rather than from the wild. It has been increasingly impressed on me in recent years that it is important to have the plants that illustrate a species really be that species and not some horticultural form or hybrid derivative of it. In other words, it is important if possible to begin with scientifically accurate materials and to maintain careful office-records about them. Moreover, species vary geographically in nature; it is important to know the exact source of any such plant material.

So frequently when seeds are obtained from a botanical garden and grown, they prove not to be the species whose name they bear. In one way this is humiliating; in another it is not surprising. In many gardens it is desirable to have perennial or annual herbs in small plots in synoptic series, one related species after another in close proximity. As they reseed or as perennials spread, they get out of their own bed and may take over their neighbor's but their labels do not shift with them.

Several years ago we moved the Rancho Santa Ana Botanic Garden from Orange County to Claremont. Our older plantings had been accumulated by many years of effort and expense, so we tried so far as possible to salvage what we could. We had for example collections of many species and varieties of Ceanothus and gathered seeds from plants of known origin for propagation at our new site. It was perhaps not surprising, but none the less disquieting, to find that much of this material collected in the old garden was hybrid and our new seedlings did not come true. So, it is only with relatively long-lived individuals like trees or with species not planted near close relatives, that much confidence can be had in botanical garden products unless special care has been taken by remoteness of planting, self-hybridizing, etc. We have always said that one of the functions of a botanic garden is to preserve species becoming extinct in nature. Such preservation may thus become highly problematical.

(2) Research. I do not believe that it does harm to emphasize again that the accumulation of a large series of plant specimens growing in a garden gives opportunity to learn and know something about them and to put this new information on record. Living plants enable certain types of research on their taxonomy and botany not otherwise possible. To bring together and maintain such living collections at great expense does not afford the greatest yield from the investment, if the plants are only looked at and admired. The botanical garden should also face the desirability of using them for real investigations.

(3) Genetics and plant breeding. In looking over literature dealing with botanical gardens I am interested to see the fact emphasized that only the finest and most beautiful species or forms should be grown. I can sympathize but not agree with this point of view. Monographic work involves both showy and less conspicuous species. One of the great contributions that can be made by botanic gardens and arboreta is in the field of genetics and plant breeding. Desirable genes are not confined to showy species. Let me illustrate by a simple example. At the Rancho Santa Ana Botanic Garden, Dr. Lenz has been doing some very successful work with breeding irises native to the Pacific Coast. He has used particularly Iris innominata, a species with very handsome flowers but weak peduncles that often flop and leave the flowers down in the foliage where they are not very evident. From the southern Sierra Nevada comes a not especially beautiful Iris Munzii which has strong erect peduncles that lift its flowers high above the foliage. Although not beautiful, it makes a good parent and transfers this erect flower-stem to its offspring with I. innominata. Another example: some years ago one of the great institutions on the Atlantic Coast wanted to carry on some breeding work with a group of woody plants that take several years to bring to flowering. They had gotten together several collections for this work. Their taxonomist looked into the matter and learned that these were all from one source and the whole breeding program had to be postponed until other lots could be added. It is therefore important for an institution to build up and maintain a gene bank in a plant group if breeding is to be done. Often this means hanging on to forms that may have gone out of fashion and been generally discarded. In Cymbidium and Iris, for example, change in fashion has almost eliminated certain species and primary hybrids from American collections, yet they may be important for new breeding work and are now difficult to come by because of world conditions.

I would like to close then with the general remark that there is so much to be learned about plants, and from so many angles, that any botanical garden or arboretum can be of use to its community and to the world. If its resources are limited let it fit its program to those resources. But I feel very strongly that any good collection of plants should be more than a source of entertainment and pleasure and recreation, although I enjoy as much as anyone walking about in a botanical garden. Let us try also to use these assembled materials to increase scientific and horticultural knowledge by the investigations of our own staffs, by cooperation with other institutions such as municipalities, colleges and universities, or by any honorable means whatsoever.

COMMUNITY PARKS AND ARBORETA OR BOTANIC GARDENS

Walter J. Barrows

You are all familiar with the scope of arboreta and botanic gardens, but in order to show how they contrast with the scope of the community park, I will define them briefly. A botanic garden is a place where a collection of growing plants is maintained for the purpose of making progress in the knowledge of Botany, and of spreading the knowledge gained. An arboretum is a more specialized collection of woody plants and trees established, in actual practice, in combination with most botanic gardens, although they do exist separately as does the Arnold Arboretum. While botanic gardens actually date back to the Temple Garden at Karnak, about 1500 B.C. the present set-up of the botanic garden stems from the private herbal gardens of the 16th Century. From these gardens was derived the beginning of the systematic science of Botany.

Parks were originally places for the preservation of deerlife, but during the 18th Century parks began to be managed more for the sake of conserving their landscape beauty than for the deerhunting they offered. The park was simplicity itself; a meadow with natural clumps or groves of trees and perhaps natural brooks or streams. The Royal parks were the first ones to be opened to the general public, as the need arose for places where everyday people could have outdoor recreation. As other recreational areas, or "pleasure grounds" were established the meaning of the word "park" changed, and has since come to mean any area of land which has been set apart for public enjoyment. There are no special restrictions as to the type of recreation offered, nor are there any strict rules regarding the kind of scenery in the park area.

Nowadays we use some fairly descriptive terms for our parks which give some idea of the type of activity in which they may specialize. We use such terms as Ball Park, Amusement Park, Tot-Lot, Scenic Park, Senior Citizens Park, Memorial Park, Roadside Rest Park, Youth Camp, Zoological Park, Trailside Park, and so on.

Today a community park may contain many elements that contribute to the use and purpose of parks. A community park is in actuality just a larger unit in community living. We can expect the Martins, for instance, or any family to have the same bents in a community park as they have in their own back yards. There is a difference though, -- the Martins hope to indulge these bents in the community park on a wider scale than they could possibly do in their own back yard . If the home garden were not too cramped to serve their every need, they would not visit our parks as persistently as they do.

So as the family comes to the park, the toddlers look for a glorified version of the lawn sprinkler, a sculptured turtle to crawl about in, and a sand pile that is out of this world. The kids of pre-teen ages want a huge swimming pool with lots and lots of shallow water, ducks to

feed, bridges to cross. Teen-agers want a pool for real swimming or skin-diving, boats for rowing, trails for hiking, and strips for dragging. They want a place where they can do exactly what every other boy and girl of their age is doing, but they want to be somewhat exclusive about doing it. There is a demand for baseball fields, dance pavilions, and all the possibilities in between.

Dads want a place to casually meet other dads, a place where they can smoke and talk in peace and quiet; a place in which they can companionably explore with their minds all the phases of modern living from cars to interplanetary travel. Mom wants a clean, convenient, flyless, shady place in which her flock can picnic comfortably. She also wants a place where everyone else's desires -- for once -- are so well-met, and so safely, that there will be no demand for her services for at least a spell. Grandpa wants a sheltered area where he can play cards or chess with other oldsters, but he has more fun playing when he knows that grandma is having her own kind of fun not too far away.

The Park Superintendent sees the family as a community unit with a staggering range of interests that require expression on as broad a scale as possible. The members of the family unit are individuals, with unlike tastes. In many instances Jim Martin will have much more in common with Jack Buckner than with his brother Bill Martin.

Probably one of the basic uses of parks today is to provide places where the family members may ease the irritation of constantly rubbing elbows with each other, and the resulting tensions; places where they can be together for a picnic and apart for the rest of the day. Apart, but with the friendly bond of each one enjoying the same blue sky, and the same fresh air; the same sense of freedom and seclusion, and the same beauty. These are the same jewelled pieces which fall in a different pattern in each person's kaleidoscope of experiences, a pattern uniquely fitted to him.

So the community park of today stands out in sharp contrast to the arboretum or botanic garden. We can vizualize it as actually a community garden, an extension of everyone's own back yard, existing for the purpose of accommodating a diversity of interests. The botanic garden is clearly a garden designed for the pursuit of a specialized interest.

How can our community parks serve so many conflicting ideas and ideals at once? Only by the most careful analysis of the park site, the most functional location of the facilities, and the adept delineation of areas -- so that the activities of one area can be carried on with as little detriment to those of another area as possible.

Designers of community parks must realize that your next door neighbor and mine have a yearning for beauty that is at least partially fulfilled in the landscape of a park. A park composed of only sports facilities and structures, hard-surfaced and covered areas, and watered rock-dust could be a clean, neat, well-organized space. I think it would have as much drawing attraction to the Martins as an army base has to a private with a 3-day pass.

We have heard the plaint over the phone of the Park Department Office so often -- "We have a new park in our district, but the trees are all so small yet... it just doesn't seem like a park; we thought we'd ask about the kind of parks you have in Whittier." The beauty, charm, relaxation and change of pace that people like this have a right to expect in community parks, are largely dependent on growing plants and the atmosphere which they create.

Today's community park must be a functional park, and we are forced to the conclusion that one of its primary functions is to serve beauty on a 12-acre platter of earth in such a way as to promote the other functions which the park must also serve. Plant materials are as necessary in a community park as in a home landscape. The Martins have been planting and transplanting persistently from the day they moved in. Without some further enlightenment they may continue in this doubtful behavior until they leave the battle to the tactics of their successors to the property. Why? Because ordinary people have a craving for a kind of beauty which does not have to be created by the hands of a genius using the medium of musical instruments, of oils and water-colors, or marble and bronze. They want to create beauty from the same humble kind of stuff to which they themselves feel akin -- from simple, familiar and comfortable landscape elements of earth, rock, water, grass and plants.

We know that on the whole, people are not successful in their attempts to landscape their home grounds. They continually and monotonously fail to reconcile the functional and the beautiful. Mrs. Martin lets a passion for a rosebud interfere with easy passage up the entrance walk. Mr. Martin in his enthusiasm for his fishpond, somehow finds himself making a daily detour to get to the incinerator. Grandma has discovered that the evergreen tree which cooled the house so nicely in summer also makes it dank and dreary in winter. Grandpa has meanwhile discovered that it is not so much fun raking leaves 365 days a year.

We also know that each member of the family takes himself along wherever he goes. Mrs. Martin is every bit as fond of roses in the park as she is at home. In the park she should be granted the privelege of seeing roses grown naturally in a functional setting under conditions which permit them to thrive. If the precious commodity of beauty in the park is largely the beauty of growing plants then they must be healthy, vigorous specimens. To serve their all important purpose the plant materials of a park landscape must be especially suited to the ecological components of the site. The material must emphasize, enhance, and distinguish the various areas of activity and carry out the line and form of the design of facilities unfailingly.

In other words, in a park area above all other areas people should have an opportunity to observe functionalism making its peace with graciousness, activity buzzing in an atmosphere of stability, organization of space capturing the essence of freedom, and the separate areas unified in a composite whole.

The park superintendent of today has a multitude of practical

problems of everyday up-keep and maintenance pressing for his attention. He also must meet the need for the planning and development of new parks in line with the expanded philosophy of functional park design. He must by turns be horticulturist, entomologist, agronomist, and student of advanced thought in play equipment philosophy and design. Meanwhile he must keep his alert eye on city planning as a whole, and act out the role of a human relations expert--for he is perpetually enclosed by an eternal triangle composed of his own staff, the taxpaying public, and other city department heads.

The park superintendent is eager to put into practice any technical advances in knowledge of practical application to his field. The botanic garden is in an admirable situation to supply him with information on hitherto unused species of plant materials, with recommendations for his own area based on ecological factors as well as on color, form and habit of the material in question. The park superintendent has a use for material of nearly every conceivable size, shape, character, texture and habit. As these uses will nearly approximate those to which the plants will be put, once they are grown commercially and subsequently sold as landscape materials, his reports on the response of the plants should be of value to the botanic garden.

All landscape gardening should be based on a knowledge of the growing habits of plants; without arboreta or botanic gardens we can never hope to base our use of plant materials on constructive facts, or know the materials that can be relied upon in given ecological conditions. Arboreta and botanic gardens provide an opportunity to observe a specimen plant growing under either natural or cultivated conditions, and a basis for judging its potentialities in the park or the parkway. Many more suitable plants need to be made available for use in parks, materials that would be low in maintenance costs, leaving some money in the budget for the many other needed facilities. Many of our major maintenance problems today, especially in arboriculture, are the result of lack of information that could probably have been communicated from the botanic garden to the park superintendent if a liason had been previously established.

The number of books and periodicals purchased each year, and the number of garden clubs throughout the nation indicate that even people with a meager amount of free time at their disposal firmly intend to make part of that free time go as far as possible toward creating a livable functional garden. If they find helpful examples of materials in their community parks which might be put to use in their own garden plan, their interest will naturally spread to the botanic garden. This makes for good public relations for a phase of national scientific advancement that should be financed from public funds.

In our community parks the Martins must find constant encouragement to fight on in the battle against dirt, disorder and the unsightliness that creeps up on all sides. They must come to feel by example that it is natural to prefer and to <u>have</u> a beautiful, uncluttered and functional garden or park setting. They must have the chance to observe identified plants growing in health and vigor, to know the conditions of such growth -- to go home and try once more, more wisely, to unify plants and activities in the space organization that is the home garden.

The arboreta and botanic garden can help the community park to be a more adequate backdrop for the fantastic display of versatile human interests that must be reckoned with there; and the community park can help the botanic garden in its long range research plans. Community parks might be looked upon as gardens of practical horticulture. The relationship between the community garden and the botanic garden is one of mutual helpfulness. Their purposes, while different in some respects, overlap in the area of public usefulness, and each in its own way becomes concerned wherever plants are emphasized in the human scheme.

THE ROLE OF THE ARBORETUM IN COMMUNITY BEAUTIFICATION

Samuel Ayres, Jr.

One of the principle reasons for the founding of the Los Angeles State and County Arboretum was a recognition of the fact that, in comparison with its potentialities, Southern California, especially the metropolitan Los Angeles area, was not a beautiful community. It was felt that if a firstclass botanic garden could be established, it would kindle an appreciation for beauty in the plant world and would arouse an enthusiasm for the use of more colorful plants, leading to a general upsurge in community beautification.

Dating back to early Spanish days, exotic plants were given a prized place in Mission gardens. From time to time individual travellers have brought home seeds and established new plants in their gardens. Enterprising plantsmen have introduced many new and valuable ornamentals. Unfortunately only a fraction of these have ever found their way into general landscape use in private gardens, around public buildings, in parks, or along streetside plantings and have not become familiar to the general public. Most of the large private estates which nurtured these rare specimens had no interest in their wider distribution and frequently look jealous pride in exclusive ownership.

With the passage of time, many of the original owners have died, the estates have been sold or have been bulldozed into subdivisions with the ruthless destruction of what were nothing more than weeds to be gotten rid of, in the eyes of the subdivider. The lack of adequate botanic garden facilities in California where plants which have been introduced over the years could be permanently established is probably one of the primary reasons for the lack of color and beauty in the California scene. Old residents say that landscaping was much more colorful in the past than it is today. This can be accounted for probably on the basis of rapid expansion of population with newcomers who are unfamiliar with the type of plants best suited to this area, the opening of new subdivisions, widening of streets and the building of freeways, with the attendant destruction of many of the fine old gardens and trees.

The new home-owners, not seeing the hundreds of colorful and beautiful plants which the oldtimers grew, and becoming homesick for the familiar, have gone to the nurseries in search of maples, elms, birches, pines, and other plants which they remembered from childhood. Most nurseries, with a few notable exceptions, naturally being interested in making a living and not being too concerned with educating the public to better things, have tended to stock and advertise merchandise with which the public was already familiar. Many landscape advisers have followed a similar path of least resistance and have tended to recommend standardized plantings within a comparatively small group of so-called fool-proof trees and shrubs. Form, texture and design have very properly been given adequate consideration, but color, which adds so greatly to the joy of living, has been pushed aside.

Color belongs in our Southern California landscape with its Spanish background and its Mediterranean type of climate. Nearly all the rest of the United States is automatically deprived of the possibility of achieving color except for a burst of spring bloom and a fleeting glimpse of fall foliage; it must be satisfied with monotonous summer green and winter white. Southern California can have an abundance of color every month of the year, both on the ground and in trees, shrubs and vines. In these days of technicolor and kodachrome film, color television, three-toned automobiles, colored telephones, refrigerators and kitchen sinks, it seems strange that planting continues to be carried out mostly in shades of green. If all the flowering trees in Hawaii were to be destroyed overnight, there would probably be a sudden drop in the tourist business. The tales and pictures brought home by travellers of the shower trees and royal poincianas have contributed immensely to the glamorous appeal of the islands. While we obviously cannot grow these particular species, we can achieve the same result with other suitable plants. Even frost-hardy plants for the colder portions of Southern California could include many beautiful flowering species, and for the large areas which never experience frosts of any consequence there is an almost unlimited number of colorful plants, including flowering trees, from which to choose. For the average locations where temperatures might drop to 25 degrees once in ten years, there are still numerous desirable plants of great beauty and color.

The vicious cycle which has been set up by the loss of former colorful plantings, lack of a suitable botanic garden for the introduction, conservation and distribution of new plant species, the influx of great numbers of new residents, the indifference of many nurseries and the preoccupation with fool-proof, standardized landscaping - this vicious cycle has created a monotone comparable to the stereotyped planting seem in almost any city in the country. We have been deprived of that position of horticultural supremacy which the combination of our Spanish heritage and our unique Mediterranean climate has made so easily possible for us. There is probably no other climatic zone in the continental United States where so many ornamental plants can be grown out of doors, and it is nothing short of a tragedy that so few have actually found their way into common use.

If the Arboretum were to become only a beautiful garden, it would still be worth while, but it would not fully justify its existence. The Southern California Horticultural Institute, which founded the Arboretum, thought of it as a plant sanctuary where all of the most beautiful ornamental plants in the world from climatic conditions similar to those of Southern California could be systematically introduced, planted, tested, displayed and finally made available for the general beautification of the entire community. By testing their growing and flowering characteristics, their frost tolerance, their water requirements, their landscaping value and other features, the suitability of new plants for general use can be determined. By displaying well grown specimens, their beauty will attract public attention and nurseries will find it profitable to satisfy an increasing demand for such plants.

It is probable that the Arboretum will in the future, as it has in

the past, make available some of its surplus seeds and plants to local park departments, to members of the California Arboretum Foundation in return for their financial support, and by special exchange arrangements to interested nurseries. By seed exchanges with other botanic gardens throughout the world, new species of plants will continually be added to its collection. A notable example of this effort in the direction of civic beautification was the gift of 50 Chorisia speciosa trees to the City of Beverly Hills for planting in the center parkway strip of Sunset Boulevard. A number of trees of the same species were presented to several other Southern California communities for public planting. Four of these trees are now growing in the patio of the Pasadena City Hall.

Another contribution to civic beautification was the testing at the Arboretum of several species of cistus. Having determined the fire and drought resistant qualities of these ornamental flowering shrubs from the Mediterranean area, seeds have been propagated and given to the County and National Forestry Services for planting along firebreaks and on burned-over areas in our local mountains and foothills.

The enormous numbers of untried plants, many of which will undoubtedly prove adaptable, offer a thrilling prospect. Surely many more of the several hundred species of erythrinas and at least a few of the approximately fifty or more species of jacarandas which have been described, to name but a few genera, will find our Southern California a congenial home.

And finally, if any further arguments are necessary, such a program would be a good business investment. Beautifully planted streets and gardens always enhance property values. The thousands of visitors who come here every year also deserve consideration. Many are lured here by the glamorous advertisements of the "All-Year Club" and the various railroads and airlines. The tourist business is still one of Southern California's major industries, with heavy competition from many quarters. Anything which will make our area more beautiful will encourage visitors to come more often, to stay longer, and to spend more money.

The world is hungry for beauty and color, and people will travel many miles to satisfy that hunger. The throngs who visit the fast-disappearing wildflower fields to see the occasional and only too brief displays of spring color, the lines of cars which drive through "Christmas-Tree Lane" in Altadena each winter, and the crowds who visit the giant wistaria vine in Sierra Madre every spring are concrete and somewhat pathetic evidence of the public's hunger for beauty.

As the years pass, the influence for good of the Arboretum on our community life will be incalculable. As a horticultural center for plant introduction, research, education and distribution, the Arboretum will be able to create a veritable Garden of Eden of the Pacific.

CALIFORNIA ARBORETUM FOUNDATION

Robert Casamajor

I have been asked to relate to you briefly the history of the California Arboretum Foundation. When I look at this magnificent young institution today I am happy that I can remember when the arboretum was nothing more than a gleam in the eye of Dr. Samuel Ayres, Jr.

You may be interested in knowing how this all started. Along about 1943 or '44 the Southern California Horticultural Institute used to hold their meetings at the University Club in Los Angeles. Henry R. Davis was President at that time and one night Dr. Ayres rose and suggested that Los Angeles County should do something about an arboretum or botanical garden. He argued that here we were in a most favored location and there was no public place where beautiful flowering trees and plants could be tested and seen by the thousands of garden loving people in this area. Henry Davis agreed this was a good idea and immediately appointed Dr. Ayres chairman of an Arboretum Committee and asked him to investigate the matter and report.

He asked me to join him on this committee and we started looking around for possible sites. When it fell to my lot the next year to assume the Presidency of the Horticultural Institute I continued Dr. Ayres as arboretum chairman and we added Mr. William Hertrich and Mr. Howard A. Miller. The knowledge and experience of both these men were invaluable to us.

The first property we investigated was the Will Rogers ranch on Sunset Boulevard. We soon found however, that much of this land had a very thin soil cover over a shale formation and therefore we abandoned it.

About that time Charles Hastings died and his 900 odd acre ranch running from Foothill Boulevard up to the 1800 foot level in the mountains between Pasadena, Arcadia and Sierra Madre became available.

Hastings' executor, Mr. Crawford May offered it to us for $1,000,000, and we actually flirted with the idea of buying it, but the million dollars was completely out of our reach. When you look at the development which has taken place on this property today one wonders whether if we had been able to buy it we might not now have a handsome endowment as well as an arboretum. However, I for one have no regrets that we did not get it.

Our next attempt was an approach to the Trustees of the Henry E. Huntington Library and Art Gallery. By this time we had Mr. Manfred Meyberg and Mr. Roy F. Wilcox working with us and although we tried real hard to convince the Huntington Trustees that they should make available a part of their unused acreage for an arboretum we were unable to persuade them to our point of view.

Most of us were discouraged after this refusal, but not Dr. Ayres. He began talking with Mr. John Anson Ford and around this time he made contact with Mr. Wesley Davies who suggested we consider the "Lucky" Baldwin ranch surrounding the Lagoon, the Hugo Reid adobe, the Queen Anne Cottage, and Coach Barn.

When Dr. Ayres first brought this to my attention it sounded wonderful, but I hardly dared hope it would ever come to pass. And I can assure all of you here today that it never would have been realized if it had not been for Mr. John Anson Ford and his colleagues on the Board of Supervisors of Los Angeles County. It was their breadth of vision and their willingness to heed our arguments for the need for this great institution that makes it possible for us to be here today.

I realize this is not really a history of the California Arboretum Foundation, because the Foundation was organized in 1948 after this property was acquired with funds supplied by Los Angeles County and the State of California. However, it may serve to put on record the early activities without which there might never have been an arboretum.

One more tribute and I'm through. It would be most ungrateful if I did not acknowledge the fine public spirited attitude of the Chandler family interests in making it possible for us to dedicate this land to the public use. There is no doubt in my mind that this property could have been sold for many times the price at which the County and State acquired it.

WHY WE HAVE AN ARBORETUM

Millard Sheets

Chairman and Friends of the Arboretum:

I feel deeply honored to have been invited to participate in this very exciting dedication ceremony. In reminding me of the Mayo Mural, which the Chairman just mentioned, one of the most interesting parts of that assignment was to depict the great discoveries by man for the benefit of man. I was most excited when I found our philosophers, our historians, our anthropologists nearly all agreed on the idea, that when man discovered the function of the seas, it was the most important first basic discovery of man. It was through the ability of man to control the source of food supplies that he stabilized his living, he no longer wandered over the earth to find subsistence. He could find good earth, plant the seeds that he knew gave him the most return in food value and thus changed the entire character of man from swinging from tree to tree and living from day to day.

It seems to me that maybe a long jump to where we are today. We are not searching primarily for food, but are in the midst of a dynamic power which is the tremendous growth of America as a world power, as a world influence. It seems to me that we must take stock, to a degree, of where we are going with that power and that kind of control. Without doubt this is the most exciting and stimulating moment in the history of man. No other generation has ever dreamed of the changes that have taken place during your life time and mine. All aspects of life have been challenged and the shock to our bodies, to our spirit and to our intellect is so tremendous that certainly no other generation has faced the changes to the degree that we now face them.

I think it is quite obvious that a good society, in order to survive in the midst of such change where every institution, religion, where every activity of man is being challenged on every front must search for a balance, a balance to our material control. The fact that we have been able to raise the standard of living in America beyond that of any country previously or presently known to man, is a proof of the vitality, the courage, the insight of the people who have built this great country.

The impact of the modern sciences on our world in the past 50 years is still too close for us to realize the importance and its effects on our own chemistry. There is very little known yet even about man as a total being. We are still studying the parts of man to explain some of our present problems. We know more now about his physical self than we ever have. We are certainly learning rapidly about the necessity of understanding his mental apparatus and we are trying to keep pace with his spiritual developments. I doubt very much, however, if we have kept in real balance in this respect. What can we do in a society that moves as fast and so much from place to place as ours. We must develop this spiritual understanding and insight, which is so deeply needed, if

we are to survive and to maintain the material control of our society. We need a cultural growth comparable to the other material growths mentioned. To sum up the cultural growth in one simple statement: The languages of the spirit and of the heart. I think that all of the arts, and many facets of science, which are devoted to study of the good of this spirit, such as the Arboretum, are essential if we are to keep our balance. If one developes the cultural balance, the insight from the point of view of the heart developes our other growth; then we have a community that grows with character, with feeling, with the love of man.

It is through both the arts and sciences that we grow to understand nature. The principles of life and the meaning inherited in everything of nature will be apparent if we pause to listen, look, and have a perceptive quality that is deep in us. How do we develop this perceptive quality? Is it something that we do by merely casually looking at it? No. We have to work at it in the same way that we have worked so hard to control the physical and material side of our kind of society. It is essential that we learn to speak some of these languages, to learn the possibilities of expression and feeling andmdiscovery that lie within each of us. Each art language and each science language has the power to open whole areas of understanding to us which are otherwise unobtainable. It is only through each art, and through each science, that we learn to communicate whole areas of human understanding that are otherwise blocked off. It is impossible to substitute one for the other. Music, architecture painting, sculpture or the science of botany, these are languages which the more we know about them the more we understand and, the more amazing and exciting the world becomes, because the areas that we hadn't known about now give us so much in return to the spirit and to the heart.

Now, the question: "Why have an Arboretum?". It seems to me it is very simple. There are probably much better explanations, scientifically and otherwise, than the ones that I shall give. It seems to me, however, that the first basic reason is to provide the means by which we can search for adaptable beauty and resources for our present day living. Plants can be brought from all over the world and tested here in a great public experimental station where they are given the kind of care that one must give some of these plants, in order to find out if they can survive under our conditions. We will then find out they can live and can be used both in our own homes and in our gardens, and in the larger sense in our public parks and landscaping, for our streets, and all of the other phases that have to do with the beauty that surrounds us, as well as applications in every phase of agricultural development. I think in addition to being a great research station, one will find in the Arboretum itself as it grows and develops for generations to come, a kind of sanctuary where the individual can go and discover his own mind. We are living under such pressure that it is hard to find a silent place. We need such sanctuaries.

I thought if I could say one thing as a taxpayer like everyone else, it would be that I am deeply grateful for the wisdom of the many officials and private men and women who have visualized and supported this very important contribution to our community. To them I for one am deeply grateful. Thank you.