

Dedication of Boyce Thompson Arboretum April 1929

Franklin J. Crider
 Director Boyce Thompson Arboretum
 Superior Arizona

The dedication and official opening of the Boyce Thompson Southwestern Arboretum was held on Friday, April 6, 1929. The exercises consisted of inspection of the buildings, grounds, and experiments, barbeque luncheons and formal speaking program. The formal program was held in the natural open-air amphitheater. Professor Crider, the director of the Arboretum, gave the following address:

The Arboretum – Its Purpose and Scope

The earliest garden of which we have any definite record is the Royal Garden of Thotmes III of about the year 1000 BC, which was planned by Nekht, head gardener of the gardens attached to the temple of Karnak. The Chinese, however, are credited with being the real founders of the idea of botanic gardens, having instituted the practice of dispatching collectors to distant parts to bring back plants to be cultivated for their economic or medicinal value. "You, Sir," said Chuang-tze, 250 BC, "have a large tree and are troubled because it is of no use, why do you not plant it in a tract where there is nothing else, or in a wild and barren wild? There you might saunter idly by its side or in the enjoyment of untroubled ease sleep beneath it."

You, my friends, on your trip of inspection this morning, have seen the modest beginning, in material expression, of a great creative idea formulated in the mind of the founder of this institution. Years ago, Colonel Thompson visualized the importance of plant study as a means of contributing to the progress, benefit, and happiness of the human race. As the first result of this vision, we have the mother institution, the Boyce Thompson Institute for Plant Research at Yonkers, New York. As a later product of this same vision, there has come into being the Boyce Thompson Southwestern Arboretum, the dedication of which is the occasion of our assembling here today.

The Arboretum occupies almost the geographical center of the region it is intended primarily to serve – the sub-arid, inland portions of the southwestern United States. This includes Arizona, New Mexico, Nevada, Utah, and parts of Texas and California – embracing, in all about 500,000 square miles. Located in the foothills of the Pinal Mountains, 65 miles east of Phoenix, the Arboretum consists of 1,127 acres, a portion of which is used through Special Permit of the Federal Forest Service. Its varied physical features, composed of high peaks, deep canyons, rugged crags, rolling hills, level mesas, different soil types and exposures, together with a range in elevation from 2,300 to 4,400 feet, furnish especially favorable natural conditions for the purposes intended. The diversity and beauty of its setting is further enhanced by historic Picket Post Mountain which towers immediately above, and is included in the grounds.

The average annual rainfall of about 17 inches is almost equally divided between mid-summer and winter which gives two hot, dry periods – one in spring and early summer, and the other in

late summer and early fall. The mean annual temperature is approximately 69 degrees F, with 25 degrees as the minimum and 112 degrees as the maximum. The institution is favorably situated botanically, due to diversity of topography, and the location with reference to the typical indigenous flora. Forming a part of the common ground where the flora of the northern and southern or upper and lower Sonoran zones meet and merge, it contains a wide range of species representative of Arizona and the Southwest. At the higher elevations within the grounds are found species of *Juniperus* and *Quercus*; on the lower slopes, with northern exposure, *Dodonaea*, *Berberis*, *Dasyllirion*, *Crossosoma*, *Rhamnus*, *Simmondsia*, and *Vauquelinia*; in the canyons, along water courses, *Celtis*, *Chilopsis*, *Juglans*, *Platanus*, *Populus*, and *Salix*. The open mesas are well covered with desert types, such as *Acacia*, *Covillea*, *Ephedra*, *Fouquieria*, *Lycium*, *Parkinsonia*, *Prosopis*, *Agave*, *Yucca* and *Cacti*. Of the perennials, *Aplopappus*, *Encelia*, *Baileya*, *Salvia*, *Senecio*, *Penstemon*, *Sphaeralcea*, *Bebbia*, and the grasses are most common.

The development and progress of the Southwest centers around two major industries, mining and agriculture – including livestock and forestry, as well as the growing of farm, orchard, truck, and forage crops. Mineralogists tell us, however, that eventually the minerals in our hills will be exhausted. This thought carries the suggestion that reliance upon plants will become increasingly manifest, and leads to the conclusion that plant resources must ultimately become the basic dependence in the future development and perpetuation of our civilization in the Southwest. Under the sub-arid conditions which obtain here, the different plant cultures are conducted with irrigation water, as in the lower valleys, and with only the natural, low rainfall occurring outside the irrigation districts. In both practices, successful, permanent operation depends upon the solution of plant problems peculiar to this region.

The Arboretum hopes to assist in solving some of these problems – preparing against the time when there must be more intensive, efficient use of these vast sub-arid lands. The functions of the institution, therefore, include the study, improvement, and preservation of indigenous and introduced plants, with a view to their greater utilization and wider economic adaptation. In the expression of its founder, the Arboretum is an institution wherein to grow every tree, shrub, vine, grass, and flower able to withstand in the open ground the climate of the Southwest; a little portion of the vast area, erroneously known as the Great American Desert, preserved forever in the richness of its native flora, where will be assembled, nurtured, and studied all that is useful, interesting, and beautiful in plant life from all the sub-arid regions of the world; a place where the yet hidden secrets of these varied forms may be further revealed for the enrichment of human knowledge and the benefit of mankind. Here in the Southwest the plant grower contends with climatic and soil conditions, and consequent problems, unlike that of the eastern United States or other countries of higher rainfall and greater humidity whence have come many varieties we attempt to cultivate – often with difficulty or failure. Differing distinctly from the more humid regions, water is here the limiting factor of plant growth. The measure of our agricultural development – field, range, and forest – is in direct relation to our water supply and to the water efficiency of plants selected for cultivation. It is recognized the plants differ widely in their moisture requirements, as, for example, the cottonwood and mesquite, or alfalfa and cotton.



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With a limited, definite supply of water available for irrigation, and low, inconstant rainfall, maximum expansion in plant culture and utilization is possible only through the greatest use of plants having low moisture requirement.

Therefore the search for drought resistant varieties, the selection, breeding, and propagation of new races having low water requirement, and the study of fundamental factors which contribute to this characteristic in plants will constitute an important part of our work. The fact that much of the world's surface containing a wealth of imperfectly known plant forms, has rainfall and other climatic conditions similar to that of Arizona, gives an encouraging outlook to this field of investigation. Among the exotic plants already under observation at the Arboretum are many promising species from the drier countries such as Australia, North and South Africa, the western part of South America, and the little known deserts of central Asia. The study of our native vegetation with a view to its further utilization, as embodied in the plans of the Arboretum, is considered of equal importance to the introduction and study of exotic plants. Evidence is at hand which indicates the ready response of native species to domestication – for ornamental as well as strictly economic uses. In the line of your vision at this moment are several varieties, recently brought from the wild, which have shown remarkable improvement under cultivation, surpassing in beauty, form and color many of the common commercial types. A few striking examples, as yet unknown in the trade, are species of

Parosela, Mortonia, Vauquelinia, Covillea, Simmondsia, Baccharis, Cowania, Lysiloma, Berberis, Rhus, Baileya and Penstemon.

Further indication of the unlimited possibilities in the little-explored field of native plant investigation is seen in the great number and variety of southwestern plants. The flora of Arizona itself is not only unique and interesting, but richer in numbers of species than most sections of the United States. To appreciate this fact one must traverse in spring and mid-summer (two distinct vegetating periods in (Arizona) her beautiful flower-covered mesas; must linger beside the thorny plants of the desert – the cholla, mesquite, and the catclaw – and see something of their intricate characteristics and how, beneath protecting branches, frailer forms of plant life and find shelter from sun and rodent; must climb her rugged mountain sides clothed with giant pine, fir, spruce, and cypress; must penetrate her hidden canyons, where tangled masses of vegetation follow constant or intermittent streams from snow capped summit to foothill plain; must realize that the dry sand of her river beds and wide arroyos is but protection for hidden streams which, creeping unseen to the sea, impart life-giving moisture to plants whose roots extend deep below the ground surface.

In our efforts to determine the characteristics, relationships, and economic value of plants, the roots, as well as the tops, are given serious consideration. Although of equal or greater interest and importance, the roots of plants have received less attention

by the investigator than the more easily observed above-ground parts – the trunk, leaves and fruit. You have seen today something of our attempts to learn more about the growth and behavior of these structures. The information gained thus far from our experiments and observations indicates a very definite response of roots to moisture, drouth, temperature, and other factors, confirming the thought that they play a decisive role in plant adaptation, and suggesting further research in this field.

Two general methods of plant growing are to be undertaken at the Arboretum – with irrigation and cultivation, and without either irrigation or cultivation. With the latter method we contemplate the introduction of plants of low water requirement which will maintain themselves and reproduce under the natural conditions obtaining outside the main irrigated valleys. In this phase of our work, special attention is to be devoted to plants which may be used for such purposes as forage, soil binding, watershed protection, timber, and firewood. Efforts in this direction logically involve experiments in propagation, seeding and transplanting as well as the more fundamental studies bearing upon drouth resistance.

The work of the Arboretum is broader in scope than its name implies, which ordinarily is understood to refer only to woody plants, the trees and shrubs. In addition to the study of this class of plants, it includes the study of other plant types as well, such as grasses, the succulents (Cacti, Agaves, Yuccas, Mesembryanthemums, etc.) and herbaceous perennials. Since both the utilitarian and ornamental aspects of plants are considered, the Arboretum should in time contain living specimens of every species in the drier parts of the world which offers any promise whatsoever of usefulness – as, for example, food, forage, fiber, oil, rubber, tannin, dye, medicine, perfume, timber, firewood, shade, and ornamentation. In the arrangement of plantings, the botanical, geographical, and landscape relationships are taken into account, but adhered to only in so far as the specific characteristics of the plants and the more essential

factors of local adaptation permit. The greater attention is given the plant as an individual, that it may have the fullest opportunity of development and response to climatic and soil environment.

While our major activities are to be confined to the Arboretum grounds, additional experimental areas have been secured in other localities which provide different climatic and soil conditions. One such tract, with typical desert conditions, is located beyond the foothills on the level mesa. Others, through the cooperation of the Federal Forest Service, are located in the more heavily wooded Pinal Mountain Range, between the elevations of 4,500 and 7,500 feet. In this way, we are able to study plant acclimatization and adaptation under a very wide range of conditions, and to accommodate plants from almost every part of the world except the humid, tropical regions.

Realizing the importance of concentrating upon the plant problems of this region from every source and angle, the Arboretum hopes to unite in effort with the other plant research institutions in the Southwest. It is particularly appropriate, and we desire especially, to cooperate with the institutions within the State. As you have observed today, the few years since the establishment of the Arboretum have been devoted largely to foundation planning – the construction of suitable buildings, installation of irrigation systems, building roads and trails, clearing tillable areas, and initiating essential plant investigations. It seemed fitting, therefore, at this stage of our development to invite your closer acquaintanceship with the work being planned and undertaken here. The helpful interest of friends of the institution, as expressed in part by your presence, and messages from others who were unable to join with us on this occasion, strengthen our endeavors and assures more successful accomplishment. We trust that the knowledge gained by these efforts may justify the faith and insure the realization of the vision and purpose of our founder in establishing, and providing for the perpetuation of, the Boyce Thompson Southwestern Arboretum.



Dedication of the Smith Building, Boyce Thompson Arboretum, April, 1929