

THE TREE DAHLIA OF GUATEMALA

WILSON POPENOE

Agricultural Explorer, United States Department of Agriculture

RIDING through the Guatemalan highlands in the months of December or January, the traveler is certain to be impressed with the beauty of the wild tree dahlia whose starry, lilac-pink flowers, in graceful clusters upon long slender stems, break the somber monotony of a dark green hillside in a most effective manner. And as he enters one of the picturesque Indian villages of the highlands, particularly if he be so fortunate as to find himself in the town of Tactic, he is sure to be enchanted by the flowering hedges of this plant which surround the diminutive gardens of the people.

SUITABLE FOR SUB-TROPICAL AREAS

Why has not the Guatemalan tree dahlia become more widely known horticulturally? A plant at once so beautiful, so conspicuous in its native home, and so readily propagated should be one of the first to be carried to other lands; yet *Dahlia maxoni* (such is the name under which the species is now known) seems never to have become widely distributed. Probably this is due to the fact that its climatic requirements fit it for cultivation only in the mildest parts of the sub-tropics, or in the tropics at elevations sufficiently high to temper the heat. When planted in northern gardens, it is cut down by frost before it has had an opportunity to come into flower, though in favored situations in southern California it has occasionally bloomed gorgeously. In Florida, if the proper soil conditions can be provided, it should prove successful. And certainly there are many places in northern India, in southern Japan, in sub-tropical Brazil, and numerous other countries where it would find congenial surroundings, and where it would prove an excellent addition to the list of garden plants.

To the Kekchi Indians of northern Guatemala, this dahlia is known as *tzolokh*, while those who speak the

Pokonchi language call it *shikor*. Spanish-speaking Guatemalans usually term it *Santa Catarina*. Though extremely abundant, both wild and cultivated, in many parts of the Guatemalan highlands (principally between 3,000 and 7,000 feet elevation) it seems never to have received much attention from botanists; indeed, W. E. Safford, of the U. S. Department of Agriculture, last year found that it had not yet received even a name, hence he described it as *Dahlia maxoni*, in honor of William A. Maxon, of the U. S. National Herbarium.

FOUR DISTINCT FORMS

When I first saw this plant in Guatemala during the winter of 1916-17, I felt immediately that it was worthy of horticultural attention. Still more was I impressed with its possibilities when I found what appeared to be four distinct forms of the species; the type, which is single-flowered and lilac-pink in color; a single-flowered white variety, identical with the type except in color; and two double-flowered varieties—one lilac-pink and one white. I sent cuttings of these double-flowered forms to Washington, where they were propagated but later lost by freezing, and I took home with me photographs of them. From my description of the plant, and from photographs, Mr. Safford thought the double-flowered form so distinct from the type that he did not include it in his description of *Dahlia maxoni*.

Upon returning to Guatemala, and again seeing the tree dahlia in bloom, I have been able to satisfy myself that the double-flowered varieties have their origin in the single-flowered, typical form, and properly belong to the same species.

As a wild plant, upon the mountainsides removed from cultivation, I have never seen any other than the typical form, with eight lilac-pink ray-florets



THE TREE DAHLIA IN CULTIVATION

The double-flowered forms which originate in cultivation are propagated by cuttings and planted in gardens or hedgerows. The huge size to which the plants may grow is shown by this row along a fence in Tactic, Guatemala. This variety is lilac-pink in color. (Fig. 21.)



THREE FLOWERS FROM A SINGLE PLANT

The origin of double-flowered varieties by bud-sporting or mutation is illustrated by the three flowers shown in this illustration. All of them were taken from the same plant, growing in a hedgerow at Tactic, Guatemala. The flower on the left is single, practically the same as those produced by wild plants; the one in the center is an intermediate, while on the right is one which has become fully double. (Fig. 22.)

and a compact group of small yellow disk-florets. Sometimes the stems reach 15 or even 18 feet in height, and become quite woody toward the base. They terminate in a number of slender branches, each bearing several flowers, not all of which open at one time. The flowers face outwards and upwards, one of the characteristics which distinguishes this species from *D. imperialis*. The flowers of the latter are distinctly nodding.

When brought into cultivation around the huts of the Indians the species seems to lose its stability. In place of single lilac-pink flowers other forms often appear, and since the plant is readily propagated by cuttings it is a simple matter to reproduce these variations. The single white variety is relatively rare, and its flowers are much in demand among the Indians for decorating the images of saints which all of them keep in their homes. The double white is somewhat more abundant, and the double lilac-pink is perhaps the commonest of all the variations from the type. I have seen all of these forms both in northern Guatemala (Tactic and Coban) and in the central part of the country, near Antigua.

WIDE RANGE OF FORM AND COLOR

It is evident that the double-flowered forms originate as bud-sports from the single ones, for I have found numerous plants, both in northern Guatemala and near Antigua, on which there were flowers of both types, as well as intermediate forms. Figure 22 shows three flowers from a single plant growing in a hedgerow at Tactic, Alta Verapaz. On the left is the typical flower with eight ray-florets, and numerous minute yellow disk-florets closely crowded together. In the center flower many of the disk-florets are no longer small and

yellow, but have become more like the ray-florets in character and similar in color—lilac-pink in this instance. In the flower on the right, the disk-florets are still larger, and the flower has become quite double. Even in the double-flowered form, however, the ray-florets can be distinguished from the altered disk-florets. In the flower shown in the photograph, the ray-florets appear in the rear, larger and broader than the rest. While the typical, single-flowered form produces fertile seed in abundance, I have been unable to find any seed produced by the double-flowered varieties.

The largest flowers, whether single or double, measure four or five inches in diameter. In the double-flowered forms there are various shades of color. I have seen a bright lilac-pink—almost a pure pink; a deep lilac-pink; and a darker shade which could almost be called a mauve.

The wide range of form and color which horticulturists have obtained from the several species of *Dahlia* cultivated in the north is familiar to everyone. Varieties have been produced both by crossing, and through the vegetative propagation of forms which originated as bud-sports. The only defect of *Dahlia maxoni*, from the northern horticulturist's point of view, is the long growing season which it requires in order to reach the flowering stage. But will it not be possible, by crossing this species with some of those now cultivated in the north, to produce interesting and valuable forms which will be successful under practically the same conditions as the cactus and other groups of cultivated dahlias? Certainly a species which grows to eighteen feet in height, and which exhibits a strong tendency to produce handsome double-flowered sports, will not be without interest to American dahlia breeders!