Up to less than a decade ago the two known species of *Washingtonia* were known to grow naturally only in southern California and in Lower California. Then, about 1923, a colony of fanleaf-palms was discovered in a locality, fortunately for their preservation, rather inconvenient of access, in western Arizona; these palms closely resemble *W. filifera* and will prove, upon study, to be identical with that species or to represent another closely related species.  

John K. Small.

CALIFORNIA WILD FLOWERS

The lecturer, after spending a very short period of time in Nevada as a small boy, went to California and has devoted most of his life to the study of the plant life of that state.

The thing which distinguishes the wild flowers of California when compared with most other portions of the United States is the mass effects of flowers in certain parts of the state. When the speaker went to California in 1870 there were flowers nearly everywhere. In the central valley of California in 1870 you could make a complete circuit of 1,000 miles of wild-flower gardens. As civilization came to California the flowers diminished. Very large areas which were then natural or used only for grazing are now orchards, vineyards, or devoted to other crops. Another reason for the disappearance of the flowers is to be found in the habits of domestic animals. In the early days the sheep were allowed to wander around as in the East, but now, where flocks of sheep are closely herded, there is practically nothing left. The sheep are really destroying a greater asset than their own value and killing out the grasses on the range. The grazing of cattle does much to diminish flowers but sheep are the worst. The third cause is the cutting of the forests, which then reseed very densely. Brush fires and grass fires have been very largely stopped. Great areas of land which were open grassy land in 1870 and 1880 are now dense

1 Abstract of an illustrated lecture given at The New York Botanical Garden on Saturday afternoon, November 22, 1930, in substitution for the announced lecture on "California Plant Life," by Dr. E. D. Merrill.
areas of brush, so dense that flowers cannot live there. The flowers which naturally love woodlands are not there because the brushland is too new. There is a fourth cause for disappearance of flowers in California. The weeds and some grasses native to the Mediterranean region have come to America and made themselves at home. Foxtail grass first came in little patches, then in dense areas, crowding out everything else. California is practically full of introduced weeds and grasses in certain regions. Some of the ornamental native plants which do not seed rapidly and are naturally uncommon can be exterminated entirely by digging and do need protection. On the other hand, the clearing of forest and brushland in some cases has favored the wild flowers, such as the California poppies and Brodiaea coccinea, which are actually spreading.

In 1882 the lecturer made his first trip to the Sierra Nevada Mountains. He went seeking a certain lily, Lilium Humboldtii, and was told of a place where it was very plentiful. Here there were about 10,000 of that one lily, because man had stepped in and changed natural conditions by clearing the forest and making open brushland favoring the lilies. In some places civilization will destroy and in others it will stimulate. Some years ago he went with Luther Burbank to a little town where there were 300 acres of Camassias growing naturally in the bed of a drained lake. There were millions of them.

A week later he was in the edge of the Mojave Desert, a region four thousand feet above the sea-level, and stopped in the late evening at a little wayside hotel. In the morning, looking westward, he saw great masses of California poppy. This particular field of poppies was five miles long and it was a glorious sight. Again, in one of the lower deserts, Professor Jepson told him of a lake (when rainy) about eleven miles long, and full of Baerias, a little yellow composite. Sometimes it will be a brush fire that will give the flowers a chance. All of the plants are larger there than they were before, with many more flowers. After clearing and burning redwood lands, the California lilac (Ceanothus) comes up in thousands. In places, one can see just one solid mass of that one shrub. These sights in California are beautiful, but sometimes the meadows of Mt. Rainier in the State of Washington may give even more massive color effects. The kinds of flowers in Cali-
fornia, as elsewhere, are distributed according to conditions of soil and climate. People fail to recognize the extreme extent of the State of California from the humid north to the deserts in the south. We know that in an extremely arid country certain types of plants develop, like cacti and other succulents. Very high in the mountains we have characteristic alpine plants. Near the sea-coast other types of plants develop. The radio-activity of certain soils in California may have some influence in the developing of new species. Soils do have great effects on variation, especially in areas where there are copper and manganese.

California is famous for its flowers and trees. In a certain small area there are nine different species of oak. Nearby there is an iris that grows about six inches high, and for sixty miles one can see no other type of iris. In certain regions their flowers are blue and in other parts the flowers of the same species are yellow. In areas between the two colors, every intermediate gradation of color occurs.

The lecture was illustrated by about seventy-five colored lantern slides.

Carl Purdy.

BOTANICAL EXPLORATION OF THE ISLAND OF HAINAN

An arrangement has been made between Dr. E. D. Merrill, Director-in-Chief of The New York Botanical Garden, and Mr. Woon Young Chun, Director of the Botanical Institute of Sun Yatsen University, Canton, China, for the botanical exploration of the large island of Hainan, lying off the southeast coast of China, with the understanding that the two institutions are to share the collections equally.

This island is about 160 miles long and 90 miles wide, with an area of approximately 14,000 square miles, which makes it nearly twice as large as New Jersey. The present plan provides for exploration for a period of thirteen months by two collecting parties to be organized by Mr. Chun and to give particular attention to the interior mountains and the southern portions of the island, the flora of which is very inadequately known. From twelve to twenty specimens of each number are to be collected