lived in Oregon and Washington and finally from 1881 to 1898 in San Luis Obispo town, where Mr. Summers was rector of St. Stephens church. Here in this place they developed about their home a fine garden which was visited by many persons. Mrs. Summers collected the native plants of the region, especially around San Luis Obispo and Santa Margarita, and thus built up a local herbarium. Some interested person drew the attention of regent Phoebe Hearst of the University of California to the value of her herbarium, whereupon Mrs. Hearst purchased the collection and presented it to the University of California Herbarium. The specimens have in consequence often been cited in publications.

Mrs. Summers, aged fifty-nine years, died at Santa Cruz, December 27, 1898, surviving her husband only six months. During the period of her residence in San Luis Obispo she taught botany to the young people, and both she and her husband are still remembered as talented and cultured. One of her pupils, Mrs. Georgiana Parks Ballard, a charming woman of Paso Robles, has carried on amongst the people the work of preserving in the county an interest in the native plants. For most of the facts concerning Mrs. Summers I am indebted to Miss Ramona Reed of San Luis Obispo.

FOUR- AND FIVE-LEAVED CLUSTERS IN MONTEREY PINE

FERDINAND W. HAASIS

In the course of examinations in the fall of 1930 of the needles of a Monterey pine (Pinus radiata Don) standing on the grounds of the Coastal Laboratory at Carmel, California, it was observed that a few of the leaves were in fascicles of 4 instead of the customary 3 or rarer 2. Four such fascicles were noted, all situated near the end of the 1929 growth on the main stem about 2.5 m above the ground. None were observed on the 6 branches of the whorl at the base of this internode. Further observation disclosed the fact that 4-leaved fascicles were not uncommon on the trees in this vicinity, although they were not found on all of the trees examined. While 4-leaved fascicles were not seen on six somewhat smaller trees within a radius of 10 meters of the tree where the occurrence was first observed, yet altogether 9 different trees were noted with needles in 4's, these trees being separated from one another by a maximum distance of 46 meters.

The occurrence of 4-leaved fascicles in these trees is not restricted to any one calendar year, having been observed on various individuals on the growth of the years 1925, 1927, 1929, and 1930. Most of such clusters, however, were found on the 1929 internodes, with a considerable number on the 1925 growth in the case of the one tree where such old leaves were found persisting. In addition to these 4-leaved clusters, a few 5-leaved fascicles were also seen, mostly on the 1925 growth of the tree just mentioned.

Although the greater number of the 4-leaved clusters were noted on the main stem, sometimes on vigorously growing trees, but at other

times on overtopped trees, yet in a few cases they were observed also on lateral branches. Three-leaved clusters are apparently commoner on the Coastal Laboratory grounds than 2-leaved and, indeed, from the observations made, it seems that 4-leaved clusters are more numerous here than 2-leaved. In the case of one 1.4-m tree needles were found in clusters of 3, of 4, and of 5, and in addition there were a few isolated long leaves of the primary type.

The occurrence of 4-leaved or 5-leaved fascicles in Monterey pine is not mentioned as a possibility by Sudworth,[1] Jepson,[2] Sargent,[3] or Abrams,[4] although 4-leaved clusters are not unknown in other American species of the genus, and are in some cases normal. Five-leaved clusters, also, have been reported for one or two pitch pine species. Sudworth, for example, mentions 4- and 5-needled clusters in Pinus ponderosa Laws., which usually has 3- or (according to Sargent) sometimes 2-needled clusters.

It appears that the occurrence of 4- and 5-leaved fascicles has not been previously reported for Monterey pine. And furthermore, 4-leaved clusters seem to be relatively rare among the pines of the United States. From the fact, however, that such a condition has been observed in the case of another normally 3- and 2-needled pine it is not entirely surprising that it should be found in this species. Still, it is to be borne in mind that the range of P. ponderosa is far more extensive than that of P. radiata and greater variation would accordingly be expected in the former species.

Carnegie Institute of Washington, September 4, 1931.

BIOGRAPHICAL NOTICE OF IDA MAY BLOCHMAN

ETHEL K. CRUM

Ida May Twitchell was born April 11, 1854 at Bangor, Maine. She resided in Iowa from 1857 to 1880, and in 1878 graduated with high honors from the State College at Ames. In 1880 she removed to Santa Maria, California, where she taught first in the elementary schools, later, from 1896 to 1909 in the Santa Maria Union High School. Her marriage to Lazar E. Blochman took place at Santa Maria in 1888. Mrs. Blochman's death occurred August 1, 1931 at Berkeley of which she had been a resident since 1909.

For botany, which was her favorite subject at college, Mrs. Blochman retained a keen and life-long interest. In 1893 she sent a series of articles on the native economic plants to Erythea which the youthful editor captioned under the title "California Herb Lore." Another series on "The Wild Flowers of California" appeared in 1896 in "El

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[1] Sudworth, G. B. Forest trees of the Pacific Slope. U. S. Dept. of Agr. Forest Service. 1908.

[2] Jepson, W. L. Silva of California. Memoirs of the Univ. of California, vol. 2, 1910; *ibid.* Manual of the flowering plants of California. Berkeley, Calif. 1923, 1925.

[3] Sargent, C. S. Manual of the trees of North America. Boston, Mass. 1922.

[4] Abrams, L. Illustrated flora of the Pacific States, vol. 1, 1923.