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a roughly circular area two feet wide, a fact not at all evident in the undisturbed plant. Only careful digging discloses the small scattered caespitose tufts as interconnected by elongate and very slender subterranean stolons. The densely glandular, non-ciliate leaves somewhat suggest the geographically distant *Pblox douglasii* Hook., but the relationship is not clear.

COTYLEDON VARIATIONS IN JUNIPERUS OCCIDENTALIS HOOK.

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It has been observed that seedlings of *Juniperus occidentalis* Hook., when grown from collections made in northern and southern California, exhibit certain differences which appear to be rather constant for their respective regions. Seeds of *J. occidentalis* were collected between Susanville and Alturas in Northern Juniper Woodland and were planted in the greenhouse at the Rancho Santa Ana Botanic Garden with others taken in Yellow Pine Forest in the San Bernardino Mountains. After about one and one-half months the seedlings were studied for the very marked differences in their cotyledons. Of those raised from northern seed all but one of the 28 examined had two cotyledons. Of 28 seedlings picked at random from the southern material only one individual had two cotyledons. The majority of these seedlings had three cotyledons and 18 per cent had four.

The length of each cotyledon was measured with a vernier caliper and the average for each lot of seedlings was determined (see Table). It was found that the cotyledons of those from northern California were on the average 5.38 mm. longer than those from the south. It was also determined that the length of the cotyledons was slightly more variable among southern California seedlings. Other rather constant differences in the two lots were noted in color and width of cotyledons. The northern were a light shining green on the upper and lower surfaces and were somewhat broader than those of the southern lot which were grayish above and red beneath.

TABLE

Propagation Number	Average Number of Cotyledons	Average Length of Cotyledons	Extremes in Cotyledon Length	
			Maximum	Minimum
8222 ¹	2.03	23.54 mm.	27.7 mm.	18.2 mm.
9380 ²	3.14	18.16 mm.	25.0 mm.	13.4 mm.

In addition to the differences in seedlings of *J. occidentalis* there is considerable difference in habit of the trees in the two localities. The data on seedlings is therefore presented with the hope that it may be of use to some investigator in working out the ecotypes in a species ranging from southern California to Washington.

¹Seedlings grown from seed collected in Lassen County between Susanville and Alturas and at an elevation of 4200 feet.

²Seedlings grown from seed collected in the San Bernardino Mountains, San Bernardino County, at an elevation of 7000 feet.