the San Joaquin Valley. *S. Congdoni* is known from the foothills of Mariposa, Madera, Fresno, and Tulare counties, on the eastern side of the San Joaquin Valley, and from El Dorado County (a single locality) and Amador County (a single locality) on the eastern side of the Sacramento Valley.

University of California,
Berkeley, October, 1935.

STUDIES IN PENSTEMON—III

David D. Keck

The Section Cryptostemon

A new section is required to include the recently detected species described below. No close affinities are obvious, but there is an apparent relationship between this and the section *Erianthera* Bentham. The name *Cryptostemon* calls attention to the fact that the stamens are not only included within the throat, but are hidden by the closing of the orifice of the corolla, and that the staminode is of a brevity unexcelled within the genus.

CRYPTOSTEMON Keck sect. nov.

1. **PENSTEMON PERSONATUS** Keck sp. nov.

Herba perennis 3–5.5 dm. alta; radicibus fibrosis numerosis; caulibus paucis erectis virgatis minute puberulis; foliis subremotis integris vel obscure obsoleteque denticulatis plus minusve glaucescentibus supra glabriusculis viridibus subtus puberulis pallidioribus ovatis vel ovato-oblongis pleraque obtusis 3–6.5 cm. longis 1.2–3.5 cm. latis, inferioribus breviter petiolatis, superioribus sessilibus, floralibus ad acuminatas bracteas vix 1 cm. longas abrupte reductis; panicula laxa 7–25 cm. longa glanduloso-pubescenti, pedunculis tenuibus divergentibus infimis ad 8 cm. longis 2–5-floris, pedicellis multum brevioribus, floribus suberectis; calyce 5–6 mm. longo, lobis ovato-lanceolatis abrupte longe acuminatis anguste scariosis; corolla personata coeruleo-violacea (?) 20–25 mm. longa extus glabra vel parce viscidula intus dense barbata, tubo superne vix dilatato apud apicem plus minusve constricto, limbo brevi, labio superiore 3.5 mm. longo, labio inferiore 5 mm. longo, lobis a marginibus revolutibus; staminibus fertilibus inclusis glaberrimis, loculis antherarum divaricatibus subexplanatibus 1.2–1.4 mm. longis, staminodio sigmoideo vix 4 mm. longo praesertim apice superne dense flavo-barbato; capsula *ca.* 6 mm. longa, ovoidea; seminibus ignotis.

Type: *John B. Leiberg 5087,* collected July 10, 1900, on a dry hillside in Flea Valley, Butte County, California, at 4500 feet (1370 meters) elevation, deposited in the United States National Herbarium, No. 610331. Another collection of this species was also made in Butte County, in dry soil near Bald Hill, elevation

6000 feet, July 8, 1900, *Leiberg 5064* (US). Aside from these two collections made on a single trip, the species apparently remained uncollected until July, 1934, when it was again taken, this time by G. T. Nordstrom, No. 196, three-fourths of a mile southwest of Mt. Ararat, Plumas County, California, at 5500 feet elevation. This sheet is in the Vegetation Type Map Herbarium of the United States Forest Service, on deposit at the Herbarium of the University of California. The three localities may be found on the Bidwell Bar Quadrangle, United States Geological Survey map, forming a right triangle, the hypotenuse of which is some twenty miles across.

The writer, in company with J. Clausen, visited Flea Valley early in July, 1935, hoping to recollect the species. In spite of the fact that the season was favorable, no results rewarded a careful search of the vicinity. Since the species occurs in one of the more thoroughly botanized areas of the state, it appears to be not only one of the more interesting, but also one of the rarest species in the genus.

In floral morphology, there is a similarity between *P. personatus* and *P. hirsutus* (L.) Willd. of northeastern United States, the corollas of both being notable for having the lower lip pressed against the upper so as to close the orifice to the throat. In a flower of this type, pollination is effected only by bees of sufficient weight to depress the lower lip. The throat in *P. personatus* is bearded on all sides within the orifice, not only heavily so along the elevated ridges of the lower lip, but fairly heavily in corresponding positions on the roof.

The nearest affinity of *P. personatus* appears to be in the section *Erianthera,* possibly with such a species as *P. nemorosus* (Dougl.) Trautv. of the Cascade Range, which occurs from British Columbia to Siskiyou County, California. Vegetatively the two are rather comparable, *P. nemorosus* differing chiefly in its larger size, sharply serrate leaves and more compact inflorescence. The similarities do not end here: both have a remarkably short posterior lip of the corolla well exceeded by the anterior one and a short staminode. In the former feature, *P. nemorosus* deviates from the usual type found within its section, but as to the staminode, certain other species of the *Erianthera,* such as *P. rupicola* (Piper) Howell, possess an even shorter one and in this respect compare more approximately with *P. personatus.* No other section of the genus has staminodes so short as those in *Cryptostemon* and some members of *Erianthera.* As to the pubescence within the throat, *P. nemorosus* has none and therefore is not comparable in this respect with *P. personatus;* but *P. fruticosus* (Pursh) Greene, *P. Menziesii* Hook., and related species in that portion of the *Erianthera* have a large amount of pubescense on the ridges in the floor of the throat as well as along the lower walls. Thus, with the exception of woolly anthers, *P. personatus*

matches features from many species of *Erianthera* and serves as a link to connect that salient section with *Eupenstemon*.

Note on Section Saccanthera

Penstemon serrulatus Menz. ex Smith, in Rees' Cycl. 26: Pentstemon, sp. 5, 1813. Since publishing on the section *Saccanthera*,[1] it has been brought to the author's attention by F. W. Pennell that this earlier name must replace *P. diffusus* Dougl. ex Lindl. (1828) for the well known species that occurs chiefly to the west of the Cascadean crest from British Columbia to Oregon. The type of *P. serrulatus* has not been seen by the writer, but is probably preserved in the British Museum. A specimen which is doubtless an isotype, however, in Herbarium Hookerianum, Kew, plainly establishes the identity of the species. The latter specimen is labelled in Hooker's hand "Penstemon serrulatus" and, on succeeding lines, "Menz." and "A. M."

Carnegie Institution of Washington,
Stanford University, California,
January 14, 1936.

SURFACE PLANKTON DIATOMS IN THE NORTH PACIFIC OCEAN IN 1934

W. E. Allen

In connection with general plans of the United States Navy to become better informed concerning a number of conditions in the North Pacific Ocean, the United States Steamship Bushnell made a cruise in the summer of 1934 around the Gulf of Alaska and southward from the Aleutian Islands to the Hawaiian Islands. On this cruise Mr. R. R. Revelle of the Scripps Institution of Oceanography served as a special investigator giving particular attention to collecting water samples and hydrographic data. In addition he collected 141 surface catches of phytoplankton (mostly diatoms), using the standard Scripps Institution method of filtering a measured amount of water through number 25 bolting silk. The amount filtered at each catch on this cruise was twelve liters. I have completed the examination of this material, but it is not probable that a report covering full detail can be prepared soon, although Mr. Revelle has his own report far advanced. For that reason I am writing this note for the benefit of readers interested in the more general features.

[1] Univ. Calif. Publ. Bot. 16: 367–426. 1932.