24, 1925, *Henderson 5212* (Mo., Gray); dry slope, Clarno, southeast Wasco Co., July 3, 1921, *Peck 10020* (N.Y.).

I would limit this plant to the Upper Sonoran Zone of central Washington and Oregon. This is in essential agreement with Piper in his 'Flora of Washington' except that he includes one plant (*Cotton 359* from the Rattlesnake Hills) which I refer, rather dubiously, to *C. Macounii*. He says that *celosioides* comes from the "Arid Transition" Zone but according to the map of life zones in his 'Flora,' the localities in which *celosioides* are found are all in the Upper Sonoran Zone. The large nutlets and stout stems are the best characters of *celosioides* that may be used to separate it from its nearest allies—*C. Sheldonii* and *C. spiculifera*.

28. C. Sheldonii (Brand) new comb. Plate 28, figs. 77–79.

Oreocarya sericea Piper, Contr. U.S. Nat. Herb. **11:** 482. 1906, not *Krynitzkia sericea* Gray.

O. celosioides Macbr. Contr. Gray Herb. **48:** 29. 1916, in part, as to specimens cited, not *O. celosioides* Eastw.

O. glomerata Standley, Contr. U. S. Nat. Herb. **22:** 401. 1921, not *Cynoglossum glomeratum* Pursh.

O. Sheldonii Brand, Fedde, Rep. Sp. Nov. **19:** 73. 1923.

Definitely perennial, rather loosely caespitose; stem rather stout, 2–3 cm. high, abundantly setose with rather slender, divaricate hairs; basal leaves numerous, spatulate to oblanceolate, usually obtuse, 2–4 cm. long, 5–8 mm. broad, abundantly setose with rather weak subappressed hairs, the older leaves distinctly tomentose, pustules present on both leaf surfaces; cauline leaves similar, reduced upwards; inflorescence setose, rather narrow or the branches elongating in age, mainly uninterrupted, extending over ½ to ¾ of the stem, foliar bracts inconspicuous; calyx densely setose, sepals in anthesis linear-lanceolate, acute, 3–5 mm. long, in fruit about 8 mm. long, exceeding the nutlets by 4–5 mm.; corolla white, tube 4 mm. long, subequal to the sepals in anthesis, crests at the base of the tube evident, fornices 0.5 mm. high, probably yellow, papillose, limb 5–10 mm. broad, limb and tube subequal or the tube slightly longer than the limb, lobes united for about ⅓ their length; fruit ovoid or lanceolate-ovoid, all four nutlets commonly maturing, style exceeding the

nutlets by about 2 mm.; nutlets lanceolate, acute or subacute, 3–4 mm. long, margins in contact, acute, surfaces of nutlets slightly glossy, the dorsal tuberculate, usually more or less rugose and obscurely muricate, ventral surface more or less tuberculate; scar straight, extending from near the base to near the apex, closed, no elevated margin present.

Distribution: Transition Zone of western Montana, northern Idaho, eastern Washington, and northeastern Oregon. Type: Deep Creek, Wallowa Co., Oregon, *Sheldon 8315*.

Specimens examined:

Montana: St. Mary Lake, Glacier Nat'l. Park, Aug. 8, 1919, *Standley 17423* (U.S.); Glacier Park Station, July 6, 1919, *Standley 15107* (U.S.); Glacier Park Station, Aug. 15, 1919, *Standley 17594* (U.S.); Great Falls, June 16, 1891, *Williams 109* (Minn., U.S.); Helena, 1891, *E. N. Brandegee* (Calif.); Hallett's Ranch, Aug. 14, 1892, *E. N. Brandegee 17* (Calif.); Helena, June & July, 1892, *Aiton 64* (Minn.); Deer Lodge Valley, July 19, 1905, *Jones* (Pomona); Missoula, June 10, 1922, *Kirkwood 1262* (Mont.); near Missoula, June 12, 1901, *MacDougal 169*, this specimen is intermediate to No. 31 (*C. Bradburiana*) (U.S., Mont., Gray); upland benches, Hamilton, June 16, 1906, *Blankinship 734* (Field, U.S., Mont.); on Madison River, 4300 ft., June 28, 1860, *Hayden* (Mo.); 10 miles east of Monida, June 18, 1899, *A. & E. Nelson 5429* (R.Mt., Mo.); Shinberger's Canyon, southern Montana, July 15, 1880, *Watson 287* (Gray).

Idaho: Kootenai Co., July, 1880, *Sandberg* (Minn.); in the Palouse country and about Lake Coeur d'Alene, June–July, 1892, *Aiton 31* (Minn.).

Washington: Spokane, May 16, 1896, *Piper 2294* (Wash., Gray); Hangman Creek, Spokane, May 23, 1897, *Piper* (Wash.); Spokane River, June 2, 1892, *Henderson 2563* (Wash., Gray); Spokane, June 19, 1913, *Turesson* (R.Mt.); between mouth of Spokane and Colville, 1838–42, *Wilkes 437 (61)*, (Phila.).

Oregon: Deep Creek, Wallowa Co., June 16, 1897, *Sheldon 8315* (N.Y., Mo., U.S.).

This species as here defined is composed of rather different individuals from a large range. Mature specimens are still rather few, and the specific limits are sometimes difficult of location.

The plant is obviously a relative of *C. Bradburiana* in spite of Brand's suggestion that it is closely related to *leucophaea*. From *Bradburiana* it is separated because of the perennial, caespitose base and the western range. Macbride confused it, in part, with *celosioides*. From that species *Sheldonii* may be distinguished by the smaller, differently marked nutlets, the more slender stems, and the more easterly range. It is also likely to be confused at times with *spiculifera*. That plant has narrower leaves that are strongly ciliate-hirsute, a stronger tendency to a multicipital caudex, somewhat different nutlets, and a more southern and eastern range. *C. Macounii* is the other perennial relative of *C. Bradburiana*. That plant is characterized by narrow, strongly setose leaves, while *Sheldonii* has broad, tomentose ones. The range of *Macounii* is more northern than the others. Piper recognized the species as distinct from *celosioides* (and *glomerata*, of course) but supposed it to be *sericea*. To this Macbride makes an interesting comment, "Piper may be justified in distinguishing two species here, but if the material from eastern Washington [*Sheldonii*] represents a species distinct from that of the Columbia Valley [*celosioides*], it cannot bear the name *O. sericea* which must be used to designate a very different plant of the Rocky Mountains." With *sericea* now identified with Rydberg's *argentea*, Macbride's comment is particularly pertinent.

29. C. Macounii (Eastw.) new comb. Plate 29, figs. 80–82.

Eritrichium glomeratum Macoun, Cat. Canad. Pl. **1:** 337–338. 1883, in part.

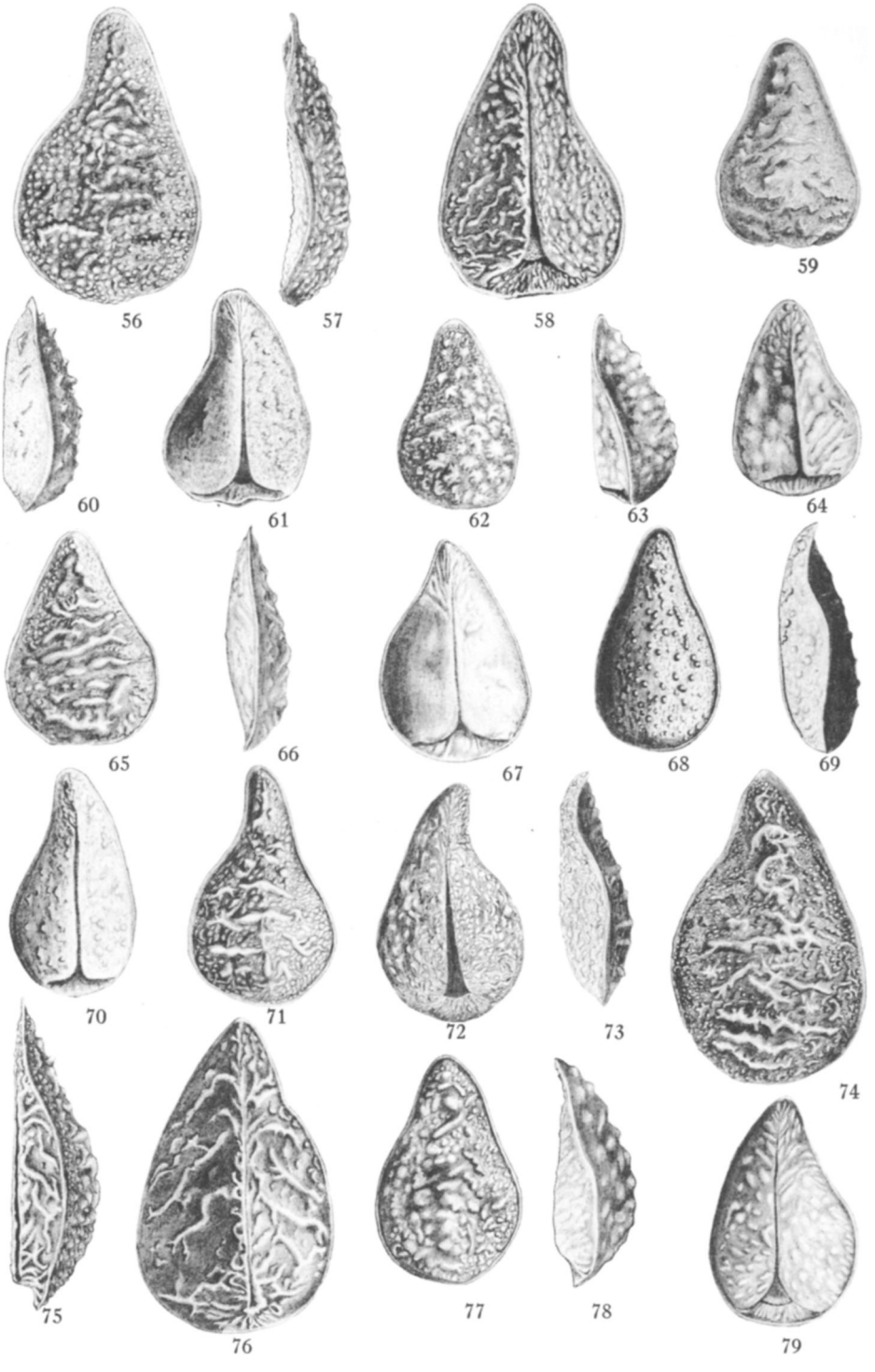
Oreocarya Macounii Eastw. Bull. Torr. Bot. Club **40:** 480. 1913.

Caespitose, long-lived perennial from a rather slender tap-root; stems slender, 10–20 cm. high, conspicuously setose with divaricate bristles; leaves linear to linear-oblanceolate, 2–5 cm. long, acute or obtuse, conspicuously setose with spreading bristles (particularly on the petioles), leaf-surfaces strigose, more densely pustulate below than above; inflorescence narrow, mainly limited to upper ⅓ or ½ of the stem, densely setose, foliar bracts sometimes rather conspicuous near the base of the inflorescence; calyx densely setose as well as strigose, sepals linear-lanceolate,

Explanation of Plate

PLATE 28

Figs. 56–58. *C. elata.* Drawn from *Osterhout 5996.*
Figs. 59–61. *C. sericea* var. *typica.* Drawn from *Payson & Payson 2528.*
Figs. 62–64. *C. aperta.* Drawn from type, *Eastwood,* Grand Junction, Colorado.
Figs. 65–67. *C. rugulosa.* Drawn from type, *M. E. Jones,* Fish Springs, Utah.
Figs. 68–70. *C. interrupta.* Drawn from *Heller 9185.*
Figs. 71–73. *C. spiculifera.* Drawn from type, *Sandberg & Leiberg 164.*
Figs. 74–76. *C. celosioides.* Drawn from *Suksdorf 888.*
Figs. 77–79. *C. Sheldonii.* Drawn from type, *Sheldon 8315.*



PAYSON—SECTION OREOCARYA OF CRYPTANTHA

COCKAYNE, BOSTON