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,

acute, about 3 mm. long in anthesis, in fruit 6–7 mm. long, exceeding the nutlets 3–4 mm.; corolla white, tube about 3 mm. long, equalling the sepals, crests at the base of the tube evident but not conspicuous, fornices about 0.5 mm. high, probably yellow, limb 7–9 mm. broad, tube and limb subequal, lobes united for about ⅓ their length; fruit lanceolate-ovoid, all four nutlets commonly maturing, style exceeding the nutlets 1.5–2 mm.; nutlets lanceolate, acute or subacute, 2.5–3 mm. long, margins in contact, acute, surfaces of nutlets dull or slightly glossy, the dorsal rather indeterminately rugose, tuberculate and muriculate, the ventral surfaces indeterminately muriculate and tuberculate, scarcely rugose, scar extending from the base to near the apex, straight, closed except for a very small area at the base, margin not elevated.

Distribution: rocky hills, from southern Saskatchewan, Alberta, and British Columbia into Montana, Wyoming, and Washington. Type: Moose Mountain Creek, Saskatchewan, *John Macoun*.

Specimens examined:

Saskatchewan: Saskatchewan, 1858, *Bourgeau* (Gray); Carlton House, 1827 (?), *Drummond* (Gray); Cypress Hills, June 8, 1884, *Macoun 85007* (Canada); Moose Jaw, June 14, 1903, *Barber 325* (Gray); Moose Jaw, July 7, 1880, *Macoun* (Minn.); Chaplin, June 18, 1896, *Macoun 12800* (Pomona, Field, Canada); Moose Mt. Creek, July 6, 1880, *Macoun* (N.Y., TYPE, U.S.); Wood Mt., June 5, 1895, *Macoun 11819* (Canada); Spy Hill, July 1, 1906, *Macoun 78500* (Canada); Parkby, June 10, 1905, *Palmer* (U.S.); South Saskatchewan, Aug. 14, 1872, *Macoun 17089* (Canada); File Hills, July 2, 1879, *Macoun 17089* (Canada).

Alberta: Medicine Hat, May 31, 1894, *Macoun 5801* (Canada, Gray); Macleod, May 12, 1913, *Moodie* (U.S.); Old Man's River, June 20, 1881, *Dawson 17088* (Canada); Milk River, July 13, 1895, *Macoun 11820* (Pomona, Canada).

British Columbia: Similkamen River, June 8, 1905, *Macoun 76741*[1] (Wash., Field, Canada).

Montana: Baltic, May 30, 1900, *Wilcox 79* (U.S.); Browning,

[1] This specimen is not a typical *C. Macounii* but is intermediate to *C. Sheldonii*.

Sept. 10, 1909, *Jones*[1] (Pomona); Lewis & Clark Nat'l. Forest on Beaver Creek, Aug. 6, 1912, *Saunders*[1] (U.S.); near Helena, June, 1921, *Wooton*[1] (U.S.); Helena, June, 1893, *Starz*[1] (Mo.); Helena, 1886, *Kelsey 102*[1] (Pomona); Helena, June, 1888, *Kelsey*[1] (U.S.); plains about Helena, June, 1887, *Anderson*[1] (Calif., Mo.); Midvale, June 24, 1903, *Umbach 149*[1] (U.S.); Garrison, July 10, 1909, *Jones*[1] (Pomona); Armstead, June 20, 1920, *Payson & Payson 1746*[2] (R.Mt., Mo., Gray).

Wyoming: between Sheridan and Buffalo, June 15–July 15, 1900, *Tweedy 3570* (R.Mt.); West Hurlbut Creek, Big Horn Mts., June 15, 1909, *Willits 92* (R.Mt.).

Washington: north side Rattlesnake Mts., May 11, 1901, *Cotton 359*[1] (R.Mt., Wash., Mo., Phila., U.S., Gray).

C. Macounii, although readily distinguishable in its extreme form as it is found on the Canadian plains, has rather doubtful specific limits in the south where it comes in contact with the ranges of related species. It is likely to be confused with *C. spiculifera*, but the author believes that it is in reality more closely related to *C. Bradburiana* and *C. Sheldonii*. It is certain, however, that all four species are too close for entire convenience and all may be found to merge. Its right to specific recognition rests on its narrow leaves, abundant and conspicuous setae, and small, rather ambiguously marked nutlets.

30. C. sobolifera Payson[3] Plate 29, figs. 83–85.

Long-lived multicipital perennial; stems branching from the

[1] These specimens are not typical *C. Macounii*. They are from a unified area in western Montana and are distinctly aberrant. In some ways they are intermediate between *Macounii* and *Sheldonii*, in others they are more like *C. Bradburiana*. Further study may make it seem desirable to separate them varietally from *Macounii* on the basis of a more robust habit.

[2] This is not a typical *C. Macounii*, but is intermediate to *C. Sheldonii*.

[3] **Cryptantha sobolifera** sp. nov., perennis; caulibus sterilibus prostratis ad apicem foliatis, caulibus floriferis 15–18 cm. altis hirsutis et setosis; foliis obovato-spathulatis obtusis 1.5–3.5 cm. longis dense strigosis aut subtomentosis et insigniter setoso-hirsutis supra et subter pustulosis, basis in petiolas gracilibus gradatim attenuatis; thyrsis angustis longo-setosis; sepalis lineari-lanceolatis 3.5 mm. longis, fructiferis 6–8 mm. longis quam nuculis 4 mm. longioribus; corolla alba, tubo 3–4 mm. longo, calycem non superante, limbo 7 mm. lato; stylo nuculas 1.5–2 mm. superante; nuculis non nitidis ovato-lanceolatis subacutis 3 mm. longis, facie exteriore tuberculosa aut leviter rugosa, faciebus ventralibus fere laevibus, sulco angusto recto, margine non edita.—Collected by *M. E. Jones*, Upper Marias Pass, Montana, Sept. 10, 1909 (Pomona, TYPE).

Explanation of Plate

PLATE 29

Figs. 80–82. *C. Macounii.* Drawn from specimen collected by *Macoun,* at Moose Jaw, Saskatchewan.

Figs. 83–85. *C. sobolifera.* Drawn from type, *M. E. Jones,* Upper Marias Pass, Montana.

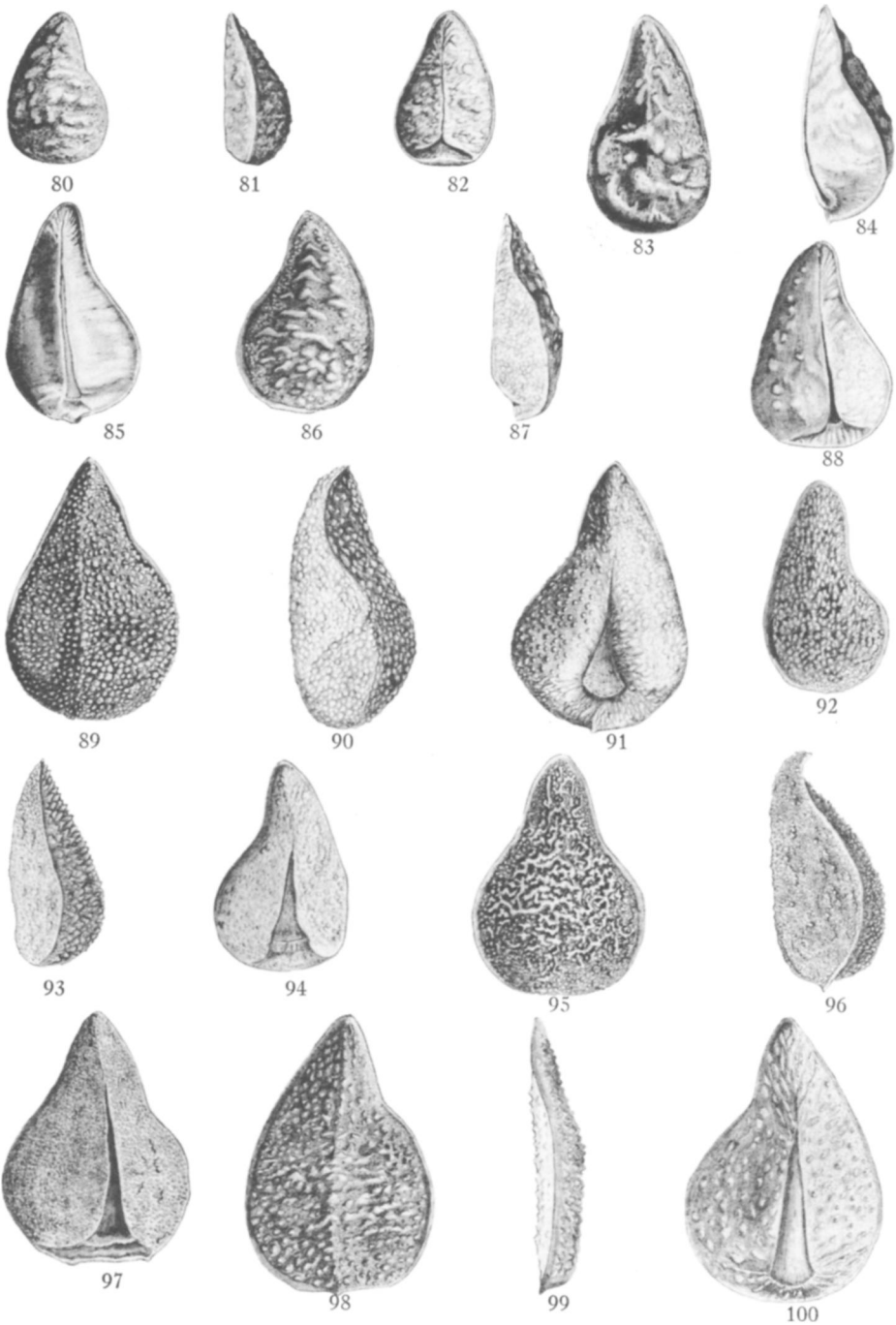
Figs. 86–88. *C. Bradburiana.*

Figs. 89–91. *C. nana* var. *Shantzii.* Drawn from type of *Oreocarya dolosa, C. P. Smith 1605.* The nutlets of *C. breviflora, C. fulvocanescens,* and *C. echinoides* are similar to those of *C. nana* var. *Shantzii.* The differences are noted in the descriptions.

Figs. 92–94. *C. cana.* Drawn from type, *A. Nelson 8309.*

Figs. 95–97. *C. propria.* Drawn from *Leiberg 2223.*

Figs. 98–100. *C. Jonesiana.* Drawn from type, *Jones,* San Rafael Swell, Utah.



PAYSON—SECTION OREOCARYA OF CRYPTANTHA

COCKAYNE, BOSTON