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CONTRIBUTIONS TO WESTERN BOTANY. NO. VII.

BY MARCUS E. JONES, A. M.

Having had an opportunity to examine the material in the National Herbarium I have been able to correct many errors, and possibly to make a few more. The following notes and new species are the result of those studies, and are only such as have come to light from the identification of my collection of 1894 made under the auspices of the U. S. Dept. of Agriculture as Special Field Agent. The long delay in the publication of the report necessitates the early publication of the new species. The number of new species and varieties discovered by me in 1894 and described here are 104, those collected and named but also found before by others are 29, a total of 133 new species and varieties in the collection. Other new species and varieties described from other sources are 57, a total of 190.

The collection of 1894 consisted of about 50,000 specimens and 1700 species, there being 1106 species and varieties in the sets, to these I have added in the sets which I will distribute about 50 others collected in 1893 and 1895. A very large amount of material was collected as the basis of an extended report on geographical distribution and plant adaptation; this material it is my intention to work up at some future date in connection with similar material gathered in the Great Basin since 1879.

The types of the new species are in my herbarium unless otherwise stated. Duplicate types of all species in the collection of 1894 are also in the National Herbarium.

New species signed "T. & E." are by Tracy and Earl.

New species signed "E. & E." are by Ellis and Everhart.

All numbers above 5000 belong to the collection of 1894.

PECTOCARYA LINEARIS var. PENICILLATA (H. & A. Bot. Beechy, 371).

Pectocarya penicillata H. & A., l. c.

The constant recurrence of intermediate forms makes it no longer possible to keep up this as a distinct species. Among other intermediate forms is one from Wilcox from Idaho in the National Herbarium.

Pectocarya setosa Gray. The nutlets are described as equally divergent, but they are not; they are geminate. In *P. pusilla* they are equally divergent in my specimens.

KRYNITZKIA ECHINOIDES.

No. 5297p. May 26, 1894, Pahria Cañon, Utah, 5300° alt., in red sand.

No. 5312ac. May 28, 1894, Cannonville, Utah, 6000° alt., on clay slopes.

This is a cæspitose perennial, 6' high, with erect stem, and is very fulvous, except the lowest leaves; pubescence of the leaves close, short, dense, appressed, upper stem and calyx very setose with spreading hairs; corolla white or cream-colored, usually 1-2" longer than the nearly filiform calyx lobes, which are 3-4" long, corolla lobes rounded, rotate, short, about 1½" long; nutlets sharp-angled, wingless, muricate, corrugated, papillose, and short-setose on the backs and sides. This is very close to *K. fulvocanescens*, to which some specimens have been referred. The synonymy of this species is very much confused, the original *Eritrichium fulvocanescens* of Gray in Herb. based on Fendler's specimen from New Mexico is *K. echinoides*, though the specimen is only in flower. Watson, in King's Report, took up the name of Gray for a Utah plant, and erroneously referred Fendler's plant to it, but the specimen on which Watson's description and figure were founded is now in the National Herbarium, and is clearly a low altitude variety of *K. sericea*(Gray)*i. e.*

var. *FULVOCANESCENS* (Wats.), being scarcely at all fulvous, and the fruit with warty (never acute) corrugations and intermediate papillæ, and the short edge of *K. glomerata*, the nutlets are not carinate, but are somewhat convex on the back and abruptly narrowed towards the rounded apex. The nutlets do not fall off in any species of this group and are pediceled below. My No. 5163ac is almost exactly this variety.

KRYNITZKIA LEUCOPHÆA var. *ALATA*.

No. 5289t. May 23, 1894, Johnson, Utah, 5000° alt., on sandstone cliffs.

No. 5261j. May 17, 1894, Springdale, Utah, 4000° alt., in red sand, or gravel.

No. 5455c. June 18, 1894, two miles north of Ferron, Utah, in clay, 5700° alt.

No. 5144. May 3, 1894, Silver Reef, Utah, 4500° alt., on sandstone cliffs.

Nutlets bordered by a thick, entire, narrow, raised wing.

To this I refer No. 632, Fendler and M. M. Palmer's specimen from Fort Defiance, New Mexico.

Echinosperrum floribundum Lehm. Dr. Gray upholds Greene's *E. ursinum* from Northern Arizona and adjacent Utah, but I fail to find any character which is permanent, even in Greene's duplicate type in the National Herbarium the characters do not hold.

Polemonium cæruleum L.

No. 5441ac. June 15, 1894, Ireland's Ranch, Salina Cañon, Utah, 8000° alt., in gravel, along shaded streams, in springy places. This is *P. filicinum* Greene. I have never been able to see any valid character separating this species from *P. foliosissimum* Gray. If the flowers are light colored then it is the one species, if not it is the other, the leaf and floral characters vary.