

costate: outer pappus of 2 persistent bristles and between them some minute pointed teeth. Eastern Oregon to California and Arizona.

M. Torreyi Gray Proc. Am. Acad. ix, 213. Stems 1-12 inches high from an annual root, branching from the base: lower leaves oblong, rather short, pinnatifid with short and dentate lobes, teeth and lobes callous-mucronate: heads seldom less than half-inch high, broadish-campanulate, short peduncled on the leafy branches: bracts of the involucre lanceolate, acuminate: achenes linear-oblong, 5-angled by as many salient often almost wing-like ribs, a much less prominent pair in each interval: outer pappus of 2-8 stout persistent bristles, between the thickish bases of which are minute teeth. Southeastern Oregon to Nevada and Utah.

104 APARGIDIUM T. & G. Fl. ii, 474.

Low herbs with fusiform biennial roots, all radical leaves, and rather small heads of yellow flowers on slender scapes. Heads many-flowered, nodding in bud. Involucre narrow-campanulate: its bracts strongly 1-nerved, in 2-3 series. Receptacle naked. Achenes columnar, truncate, smooth. Pappus brownish, of copious rather rigid and fragile barbellate-denticulate capillary bristles, with some outer and smaller ones nearly smooth.

A. boreale T. & G. l. c. Scape solitary, slender, 6-12 inches high, bearing a single head: leaves linear-lanceolate, 3-6 inches long, attenuate at both ends, entire, or obscurely undulate: involucre 6-9 lines high; of 10-15 lanceolate acuminate principal bracts and about as many similar but smaller outer ones. Wet meadows in the high mountains, Alaska to California.

105 HIERACIUM Tourn. L. Gen. n. 913.

Perennial herbs with alternate or all radical leaves and small to large erect heads of yellow, rarely white or red flowers in panicles or corymbs, or solitary. Involucre several- to many-flowered of narrow equal bracts and some short calyculate ones, or sometimes imbricated, not thickened at base nor with thickened midrib. Achenes oblong or columnar, smooth and glabrous, mostly 10-ribbed or striate, either terete or 4 or 5-angled, slightly contracted at the very base, commonly of the same thickness to the truncate summit. Pappus of rather rigid scabrous fragile bristles, brown or brownish, rarely white and soft.

§ 1 ARCHIERACIUM Fries. Heads corymbosely paniculate. Involucre of the comparatively large heads irregularly more or less imbricated. Achenes columnar. Pappus of numerous unequal bristles.

H. Canadense Michx. Fl. ii, 86. Stems robust, 4-6 feet high: leaves from lanceolate to ovate-oblong, acute, sparsely and acutely dentate, or even lacinate, at least the upper partly clasping and broad or broadish at base: involucre usually pubescent when young, occasionally glandular, the narrow outermost bracts loose: pappus sordid. Dry open woods, Oregon and northward to Pennsylvania and Canada.

§ 2 STENO THECA T. & G. Fl. ii, 476. Involucre a series of equal bracts and a few short calyculate ones, usually narrow

and few- to many-flowered. Achenes in a few species slender or tapering to the summit. Pappus of more or less scanty equal bristles.

* Crinite-hirsute with long and whitish or yellowish shaggy hairs, especially on both sides of the entire leaves: flowers yellow: achenes columnar and short, not at all narrowed upward.

H. longiberbe. Whole plant sparsely covered with long soft hairs: stems usually slender and ascending or suberect, 6-18 inches long: leaves lanceolate, entire or sparingly dentate. 3-6 inches long: heads rather few, in an irregular panicle: involucre campanulate, 6 lines high, of 10-20 lanceolate acuminate principal bracts with smaller calyculate ones at their base, all densely clothed with long spreading hairs, not glandular. On cliffs along the Columbia river near the Cascades.

H. Scouleri Hook. Fl. i, 198. Sparingly pubescent with long crisp hairs, pale and more or less glaucescent: stems 1-2 feet high, very leafy: leaves lanceolate, sessile or the lowest short-petioled, 2-6 inches long: heads rather few, in a loose irregular panicle: involucre 6 lines high; its bracts linear-lanceolate, often acuminate, imbricated in 2 or 3 series, the outer successively shorter, all beset with long bristly hairs, and more or less glandular: pappus whitish. Brit. Columbia to Oregon and Montana.

** Crinitely long-villous with soft-woolly and blackish smooth hairs above, wanting below: without stellate or glandular pubescence: flowers yellow: pappus fuscous.

H. triste Cham. in herb. Willd. Stems simple, 4-12 inches high, few-leaved, bearing solitary or 2-4 racemously disposed small heads: radical leaves obovate to spatulate, entire, green and glabrate, or with sparse pale hairs; cauline oblong, upper ones and stem more or less villous-lanate: heads half-inch high, livid: involucre and peduncle densely clothed with long dark-brown or partly grayish soft wool. Aleutian Islands to northern Washington.

*** Dark-hirsute and somewhat glandular on the involucre: leaves and lower part of stems glabrous, or at most pubescent: flowers yellow.

H. gracile Hook. Fl. i, 298. Pale green and more or less pubescent: stems tufted, slender, 2-18 inches high: leaves mostly in radical cluster, obovate to oblong-spatulate, 1-3 inches long, attenuate below to petioles, entire or repand-dentate: heads few to several, racemously disposed, the lower linear-bracteate: involucre about 4 lines high, its numerous linear bracts all nearly equal, beset with short black somewhat hispid hairs and also tomentose and glandular: achenes short-columnar: pappus almost white. In open places on the highest peaks; Alaska to California and the Rocky Mountains.

**** Not crinite but at least the radical leaves and base of the stem sparsely or even thickly setose-hirsute with spreading hairs.

+ Flowers white: stems leafy, and in large plants loosely branching

H. albiflorum Hook. l. c. Stems slender, 1-3 feet high, bearing few to numerous small heads in an open, simple or compound paniculate cyme: leaves oblong to broadly lanceolate, thin, 1-4 inches long; the upper sessile by a broad base, the lower tapering into slender petioles: involucre campanulate, 4-5 lines high, of several linear-lanceolate acute bracts, imbricated in 2 or 3 ranks, the outer successively shorter, glabrous or nearly so, not rarely with a few bristly hairs: achenes black, a line long. Common in dry wooded districts, Alaska to California and the Rocky Mountains.

+ + Stems more or less leafy: involucre 15-30-flowered, oblong-campanulate, of rather numerous narrow and acute or acutish bracts: flowers yellow: achenes not narrowed upward: pappus from sordid to dull white.

H. cynoglossoides Arvet. Gray Proc. Am. Acad. xix, 68. More or less pubescent with somewhat hispid hairs, and the inflorescence glandular: stems 1-2 feet high, numerous from the crown of a perennial root: leafy: leaves lanceolate, mostly acute, 2-6 inches long; the upper sessile by a narrow base; the lower narrowed to a winged petiole: heads few to several in an open corymbose cyme: involucre 6-8 lines high: its linear acute bracts and short peduncles rather densely hirsute with short black hairs as well as glandular: achenes rather short. In open woods British Columbia to California and the Rocky Mountains.

H. amplum Greene Eryth. iii, 101. "Stoutish 2 or 3 feet high, amply leafy up to the rather broad corymbose panicle, but no radical tuft of foliage: leaves oblong-spatulate, acutish, entire, 4-6 inches long hirsute along the margins, and with scattered appressed hairs on both faces: upper cauline leaves and branches of the inflorescence pale and glaucescent, seemingly glabrous, but somewhat tomentose-puberulent under a lens: involucre about 5 lines high, loosely calyculate the subequal bracts dark with black setulose stout hairs otherwise glabrous: ligules yellow: achenes columnar or even slightly widening to the summit: pappus white. On hillsides at 6000-7000 feet altitude Mount Adams, Washington, Suksdorf."

H. barbigerum Greene Pitt. iii, 228. Stems slender, tufted, from deep seated somewhat running rootstocks, 4-10 inches high, leafy only near the base: leaves somewhat crowded but not rosulate, lanceolate to spatulate, short petioles and leaf-margins hirsute with long spreading hairs which extend more sparsely to both sides of the leaves and stem, the lower faces of the leaves also tomentulose with branched hairs: heads 1-5, in a loose cyme: involucre campanulate, about 6 lines high its linear bracts hirsute and tomentulose like the leaves with also a few dark setulose hairs: pappus nearly white. On grassy slopes of Ashland Butte, Oregon, to Lassen county, California.

H. cinereum. Cinereous with a minute white scurfy tomentum: stems rather stout, 6-10 inches high, from stout creeping rootstocks forming large patches leafy only toward the base: leaves lanceolate or narrower, acute or acuminate, 3-4 inches long, sparsely denticulate narrowed below to broad winged petioles; sparsely hirsute with crisp hairs: heads several to numerous in a close corymbose paniculate-cyme: involucre 5-6 lines high, its linear principal bracts with broad scarious margins, the outer and shorter ones subulate all sparsely or not at all hirsute: pappus sordid. In open places near Table Rock, Clackamas county, Oregon.

+ + + Leaves all at the base of the loosely branching scape-like stem: flowers yellow only 5-15 in the narrow and diffusely paniculate heads: achenes slightly if at all tapering to the summit.

H. Bolanderi Gray Proc. Am. Acad. vii, 265. Stem slender, 6-18 inches high, commonly solitary, glabrous: leaves nearly all in a radical tuft, ovate to broadly lanceolate mostly obtuse, sparingly denticulate or entire 2-3 inches long, tapering below to a winged petiole, pale and glaucous below, green and beset with bristles above: heads few to several in a loose paniculate cyme: involucre narrow, 5-lines high, glabrous of 5-10 linear-lanceolate, very acute principal bracts and a few smaller ones at their base: achenes fully as long as the pappus.

H. Howellii Gray Bot. Gaz. xiii, 73. Stems 1-2 feet high, hoary with close stellular pubescence, hirsute below: leaves spatulate to oblanceolate entire or some of them sparingly dentate, 3-4 inches long, obtuse, tapering