

authors in Ledeb., Fl. Ross. 2:837, and in Herder, in Bull. Soc. Nat. Moscow 43:197.) (Fig. 9.)

This subspecies, though very variable in habit, is characterized by the shortly beaked achenes. The pollen is 3-pored, regular, and approximately the same size as that of *Crepis multicaulis*, a diploid 10-chromosome species, and the stomata on a cauline leaf are similarly comparable in size. No cultures, however, have been grown and the chromosome number is not known.

Southern Siberia from Irkutsk to Nertchinsk Provinces, south to northern Manchuria and Mongolia.

SIBERIA: without definite locality, in Herb. Willd. 14762-2 (B), *type*; Transbaikalia, Nertchinsk, *Sensinoff and Turczaninoff* (NY); Irkutsk Province, Nizni County, near Oka River, *Krystofovich* in 1910 (UC); Trans-Baikal region, Barguzinsk highway, St. Tataurivo, *Poplavska, Poplavski, and Ditmer 2430* (Lenin); Irkutsk government, Balachansk district, Podubalsk, *Maldsev 474* (Lenin). MANCHURIA: Khingan (Hingan) Mountains, valley of Tarim River, *Ivashkevich 384* (Lenin); north slope, Melekei, Khingan Mountains, *Potanin and Soldatov* in 1899 (Lenin); western Hingan Mountains near Dzhalatun, *Litvinov 2519* (Lenin). MONGOLIA: Mashcha River valley, *Klementz* in 1897 (Lenin).

8b. *Youngia tenuifolia altaica* subsp. nov.—Folii segmentes lineares; inflorescentia racemosa; capitula erecta; squamæ involucri minute tomentulosæ vel glabratae; interiores cum margine scariosa parte viride interiore latiore; corollæ flosculorum exteriorium 10.5-11.5 mm longæ; antheræ 4-4.2 mm longæ; rami stigmati 1.5-1.8 mm longi; achænia nigra, apice attenuata, erostrata, 4-5 mm longa.

Plant 26 to 36 cm high; stem 1 to 3 mm wide at base; remotely paniculately branched from middle or near base, lower branches elongate, upper more numerous and much shorter, aggregate inflorescence racemiform to corymbiform; cauline leaf segments filiform or linear and then up to 3 mm wide; peduncles 2 to 15 mm long; heads 9- to 10-flowered; involucre 8 to 9.5, 10.5 mm long, about 2.5 mm wide at middle in anthesis, pubescent with short pale waxy eglandulose several- or many-celled piliform trichomes; outer involucreal bracts 5, nearly equal, 1 to 2 mm long, lanceolate, acute, mediodorsally nerved and like inner bracts crested with a narrow curved claw near tip; inner bracts 6 to 8, acute; corolla 11 to 11.5 mm long; ligule about 2 mm wide; teeth 0.3 to 0.75 mm long, conspicuously gland-crested, hooded; corolla-tube about 3.5 mm long; anther-tube 3.5 to 4.2 × 1 mm dis.; filaments short, extending beyond appendages 0.4 mm; appendages 0.6 to 0.7 mm long, oblong, obtuse, united; style-branches 1.5 to 1.8 mm long, 0.15 mm wide, attenuate at tip, yellow; achenes black, 4 to 5 mm long, 0.6 to 0.9 mm wide, fusiform, dorsoventrally subcompressed or angular, strongly attenuate to the narrow (0.3 to 0.4 mm wide) neck, with conical pale summit, constricted at the pale-calloused hollow base, 10- to 12-ribbed, ribs unequal, 4 to 5 stronger, rounded, spiculate; pappus white, 4 to 5 mm long, 2-seriate, setæ nearly equal, rather fine, soft. (Fig. 10.)

Southwestern Altai Mountain region.

SIBERIA: Semipalatinsk, Lake Zaissan Nor, ex Herb. Petrop. (NY, *type*; K, cotype); Kurchumsk, Kamenogorsk, between Marasinsk and the

Kurchum River, *Goncharova and Borisova 1175* (Lenin); Zaisank district, northern slopes of Tarbagatai, *Rieznichenko 141* (Lenin); Altai Mountains, *Politow* (UWG, NY, US 597710).

Distinguished from the preceding by the more glabrate involucres, the broad scarious margins of the inner bracts, and the shorter, unbeaked

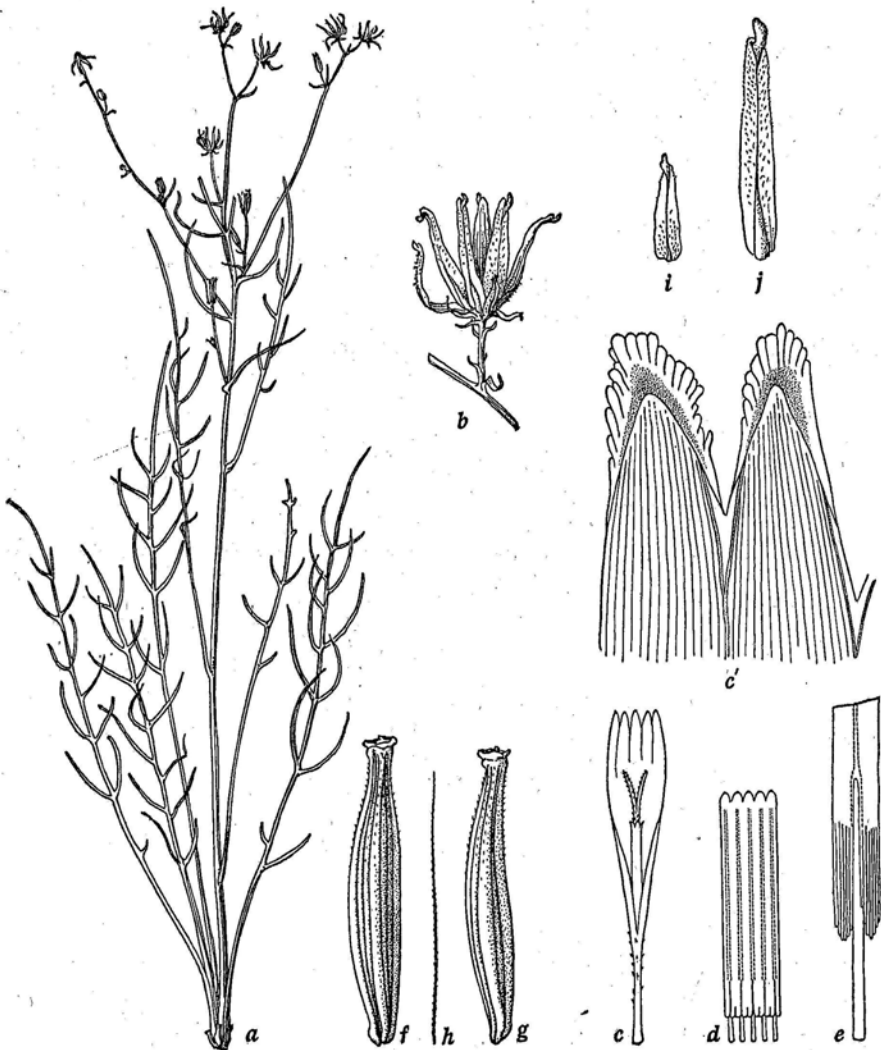


FIG. 10—*Youngia tenuifolia altaica*, from type and cotype (NY, K): a, plant,  $\times \frac{1}{2}$ ; b, old head,  $\times 2$ ; c, floret lacking ovary,  $\times 4$ ; c', detail of ligule-teeth,  $\times 50$ ; d, anther-tube,  $\times 8$ ; e, detail of appendages,  $\times 32$ ; f, g, h, two achenes and a pappus-bristle,  $\times 8$ ; i, j, outer and inner involucral bracts,  $\times 4$ .

achenes. The known range of this subspecies is relatively restricted, as all of the specimens cited are from the mountains about Lake Zaissan Nor, in Semipalatinsk Province, southern Siberia, but it may extend eastward through the relatively little-explored mountains of the northern

part of Chinese Turkestan, and in this area approach more nearly the range of subspecies *typica* than is apparent from present collections. Like *typica*, this subspecies appears to be a diploid with the chromosome number  $n=5$ , but it has not been seen in living condition.

8c. *Youngia tenuifolia tenuicaulis* subsp. nov.—Planta suffruticulosa; caules plures, tenues, rigidi, ramosissimi; rami dichotomi; pedunculæ 0.3–4.3 mm longæ, tenuissimæ; involucrem 7–10 mm longum; squamæ glabræ vel minute tomentulosæ; achænia nigra, fusiformia, erostrata, 3.5–4 mm longa.

Plant 10 to 15,20 cm high, suffruticulose; caudical leaves small, narrow, acutely dentate or pinnately parted into linear acute or acuminate segments; stems many, slender, rigid, from near base dichotomously many-branched forming a dense globose oboconical mass crowned with many flower-heads; peduncles 0.3 to 4.3 cm long, very slender, rigid, usually 1-bracteate; heads about 10-flowered; involucre 7 to 10 mm long, about 3 mm wide at middle in anthesis, glabrous or slightly pubescent; outer involucral bracts 5 or 6, unequal, longest  $\frac{1}{4}$  as long as inner bracts, like inner bracts mediodorsally nerved and crested with a short narrow curved claw near tip; inner bracts 8, obtuse; corolla 10.5 to 13.5 mm long; ligule 2 to 3 mm wide; teeth 0.3 to 0.8 mm long, conspicuously gland-crested, not or slightly hooded; corolla-tube 2.5 mm long, sparsely pubescent; anther-tube 3.25 to 5.2  $\times$  1.25 mm dis.; filaments long, extending beyond appendages 1 mm; appendages 0.75 to 1.2 mm long, oblong, obliquely acute or unequally notched at tip; style-branches 1.25 to 2.25 mm long, 0.15 mm wide, obtuse at tip, yellow; achenes black or blackish, 3.5 to 4 mm long, 0.75 mm wide, fusiform, nearly equally attenuate to both ends, with a short neck at summit 0.4 mm wide, pappus-disk slightly expanded, constricted at the yellow-calloused oblique hollow base, 10-ribbed, ribs unequal, 4 to 5 stronger, rounded, spiculate; pappus white or dusky white, 4 to 5 mm long, 1-seriate, fine, soft. (Pl. 1; fig. 11.)

No cultures have been grown of this subspecies, but it is presumably a polyploid apomict. The pollen is irregular in size and both 3-pored and 4-pored grains occur. But it is very distinct from all other forms of the species in its low stature, small leaves, many stems, and diffuse habit. And sufficient collections have been seen to indicate a fairly wide distribution.

Central and western Outer Mongolia and western Dzungaria, mountain slopes and cliffs, in rock crevices, among stones, and in sandy places.

OUTER MONGOLIA: south central part, Artsa Bogdo Mountains, foothills, steep slopes, 36.8 km east of camp 16 in Andrews' Third Asiatic Expedition, *Chaney 352* (UC 295342), *type*; central part, Ologai River, rocks, *Gorbunov 1354* (Mosc); northern part, Lake Kosogol region, near Hathyl, southern stony mountain slope, *Dadochkin 1358* (Mosc); western part, Chan gai (Khan gai) Mountains, Sharagalsa River valley, steppe, sandy and rocky places, *Pavlov 1496* (Mosc); *ibid.*, Chan gai Mountains, Halzinchinbulyk River, near Zany-gèchen, stony slope, *Pavlov 1356* (Mosc); *ibid.*, Chan gai Mountains, Shara-usu River, cliffs, *Pavlov 1357* (Mosc); *ibid.*, near Choiren, rocks, *Kondratiev 1355* (Mosc); *ibid.* (?), Altai Mountains, *Littledale* in 1897 (K). CHINESE TURKESTAN: