

been collected on ballast at New York City (*Brown*).—Pl. 9, fig. 18; 10, fig. 5; 12, figs. 13-14.

10. *G. ROBERTIANUM*, L. Spec., 681., *G. inodorum*, Don. A span to a foot and a half high, erect or spreading-decumbent, puberulent and loosely glandular-villous, purple-tinted, graveolent; leaves round-ovate, once or twice ternately divided, the ultimate lobes oblong, coarsely acuminate-toothed; stipules triangular, obtuse; pedicels half an inch or less in length, erect in flower and fruit; sepals ovate, lanceolate, long-pointed, connivent; petals rose-purple, 8-12 mm. long, spatulate, with long narrow claws; filaments glabrous; beak 20-25 mm. long, with a long slender point, minutely glandular-puberulent; styles free for about 1 mm.; divisions of ovary $1.5 \times 2.5-3$ mm., loosely wrinkled, sparingly pubescent, breaking away from the style with 2 long white apical bristles; seed 1×2 mm., smooth.—Damp ravines, etc., New Brunswick and Canada to New York, west to Minnesota and Missouri (*vide Tracy's List*); also found in Europe, Western Asia and North Africa.—Pl. 9, fig. 19; 10, fig. 10; 12, figs. 11-12.

Our *Geraniums* are annuals, becoming biennial, with the formation of a tap-root in some instances, or normally perennial, when they produce a larger or smaller rootstock which is considerably branched in one or two species. A number are weak-stemmed, and when these reach any considerable size they are decumbent, their enlarged nodes possessing the sensitiveness to gravitation which is characteristic of the swollen nodes of grasses¹, etc., which causes the stem to form abrupt geniculate bends at the lower joints. The pubescence consists of simple 1-celled pointed usually somewhat roughened hairs, frequently appressed and, on the lower part of the stem at least, retrorse, in a considerable number of species. Besides these there are in many species long, mostly spreading, white hairs, consisting of a long basal cell, and a single row of shorter cylindrical cells above. In *G. maculatum*, and especially *G. erianthum*, these, which abound on the calyx, often rendering it very villous in the latter, are tipped with rather small, purple glands, frequently rudimentary in the former. In *G. rotundifolium* and *G. Richardsonii*, though somewhat shorter and more rigid, they abound on the pedicels, etc., still preserving their white appearance; while in *G. Fremontii*, and especially *G. incisum*, they are of a dirty-yellow color. As a rule, hairs of this class appear to be pretty constant in their occurrence or absence in a given species; but some pedicels of *G. caespitosum* are nearly or quite destitute of glands, while others, even on the same plant, are evidently glandular-pubescent, and, judging from other plants, too much reliance should not be placed on characters derived from the pubescence. (Note 1.)

The inflorescence of *Geranium* is essentially cymose, the stem ending in a 1- or, mostly, 2-flowered peduncle, while lateral peduncles arise from the axils of the cauline leaves in simple plants of the *maculatum* type, their ultimate branches likewise ending in paired pedicels. In *G. maculatum* the lateral peduncles are sometimes more than 2, and bear reduced leaves, while in its western representatives they are regularly leafy and elongated, but otherwise similar. There is at first sight little to connect the more branched

¹ On *G. Robertianum*, see Rützou; Bot. Tidsskrift, xii; Just's Jahresbericht, ix, 420.

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