

S. SAGINOIDES, var. **hesperia**, n. var., sepalis 1.3–2 mm. longis.—The following belong here. ALBERTA: Malique Lake, S. Brown, no. 1176; Mt. Temple, Laggan, *Butters & Holway*. MONTANA: near melting snow, head of Cottonwood Creek, Tobacco Root Range, alt. 9000 ft., *Blankinship*. COLORADO: Chambers Lake, alt. 9500 ft., *Crandall*, no. 89 (TYPE in Gray Herb.). IDAHO: near Lolo Divide, *Watson*, no. 58; near Sohons Pass, alt. 1500 m., *Leiberg*, no. 1425. UTAH: Dyer Mine, Uintah Mts., *Goodding*, no. 1346. NEVADA: head of Fall Creek, Ormsby Co., alt. 2460 m., *Baker*, no. 1332. CALIFORNIA: Bear Valley, *Parish*, no. 1491; border of cold spring above Bluff Lake, alt. 8000 ft., San Bernardino Mts., *Parish*, no. 3605; Webber Lake, *Lemmon*; Cloud's Rest, Mariposa Co., *Congdon*. OREGON: Eagle Creek Mts., *Cusick*; along rills at 7000 ft., Powder River Mts., *Piper*, no. 2520. WASHINGTON: Mt. Rainier, *Allen*, no. 51; Cascade Mts., lat. 49°, *Lyall*. BRITISH COLUMBIA: summit of Rocky Mts., alt. 8000 ft., *J. Macoun*, no. 10; Asulkan Valley, alt. 4100–6000 ft., S. Brown, no. 581; Fish Creek Valley, alt. 5000 ft., *Butters & Holway*.

GRAY HERBARIUM.

INCONSTANCY IN COLOR-FORMS OF *HEPATICA AMERICANA*.—In the spring of 1918 I took from the woods and set out in my door-yard four clumps of *Hepatica americana* (*H. triloba* of the Manual; see RHODORA xix. 45, March, 1917). Two bore the blue flowers typical of the species, one had them pink (*f. rhodantha* Fernald), and one white (*f. candida* Fernald). All have flourished; one clump yielded 84 blossoms at a single flowering and has never produced less than about 50. All are still thriving. But of the four only one, the white, has kept the color of its flowers wholly unchanged.

The pink form held its color for one season. Then for four years it came white. Last year (1924) it turned pink again and this year it is still pink, though rather pale. One of the blue-flowered clumps has preserved its color, with some little change of shade, until this spring, when it has suddenly and without transitional stages in previous seasons turned a clear lilac-pink. The flowers of the remaining clump are still blue, though this year very pale.

Dr. A. J. Eames has recorded instances of similar inconstancy in *Viola pedata*, *f. rosea* and in a color-form of *Rudbeckia hirta*. In these cases, however, the variation was in a different direction; his pink-flowered violets reverted to the typical blue and the corresponding reversion occurred in the *Rudbeckia*.

The causes of such inconstancy offer an interesting field for conjecture, or experiment by those equipped to make it. Evidently there is a difference in individuals. My pink-flowered plant was most subject to variation; the white-flowered one not at all. That the pure albino would be constant might, perhaps, be expected. At least, its sepals, tested with hydrochloric acid and ammonia, give absolutely negative reactions; and this, as far as it goes, would seem to indicate the absence in them of any pigment to change. And having, presumably, lost the power to produce pigment, this plant, at least, shows, to date, no tendency to recover it. In the other plants, the altered conditions after transplanting might stimulate physiological change. Moreover, once or twice a year the plants have been given a mulch of leaf-mold. Variations in the quantity of this, or in the degree of its decomposition might conceivably alter the chemical character of the soil sufficiently to induce, in individual plants of inherent physiological instability, changes in the cell-sap great enough to affect the sensitive anthocyan pigments concerned. Dr. Eames considered that weak or pathological conditions were responsible for the color-forms under his observation. If this be the case, variations in the leaf-mold might bring about variations in nutrition which would account for the changes in flower-color here recorded. But my vigorous plants are certainly not obviously weak or pathological; a much feebler appearing plant in another part of the premises has not changed color for five or six years. And horticulturists have been successful in fixing similar color-forms in flowers having anthocyan pigmentation.

In any case, the fact of inconstancy seems worth recording. It is in strong contrast to the behavior of a yellow-flowered *Trillium erectum*, also in my door-yard. Here, where a different kind of pigment is concerned, the flowers have come absolutely true to color for seven and three years respectively. So have some half-dozen plants of the typical form and one intermediate in coloration.—C. A. WEATHERBY, Gray Herbarium.

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