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AVERY HOWE

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TORREYA

A Monthly Journal of Botanical Notes and News

JOHN TORREY, 1796–1873

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

MARSHALL AVERY HOWE

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1904

ERRATA, VOLUME 4

Page 36, 22d line, for *Brefelda*, read *Brefeldia*.
Page 64, last line, for *augustifolia*, read *angustifolia*.
Page 67, 12th line, for *Virburnum*, read *Viburnum*.
Page 89, 3d line of footnote, *for* Lands., *read* Lunds.
Page 99, after line 5, *insert* SPERMATOPHYTA.
Page 111, 1st and 2d lines, *for* New New, *read* New York.
Page 143, 22d line, *for* Thistleton, *read* Thiselton.

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TORREYA

June, 1904

RESISTANCE OF DROUGHT BY LIVERWORTS

By Douglas Houghton Campbell

We are accustomed to consider the archegoniates in general as moisture-loving plants, and this is, to a certain extent, true. But it readily may be shown that there are many exceptions to the rule, even in regions of abundant moisture; while in more arid districts it is becoming clear that many species have developed special contrivances for surviving long periods of drought.

In moister regions, like the eastern United States, many species of rock-haunting or epiphytic mosses occur which can survive a certain amount of desiccation; and among the Hepaticae may be mentioned various foliose Jungermanniaceae which share this peculiarity with the mosses. How far this power of resisting drought is found among the eastern thallose Jungermanniaceae and Marchantiaceae, so far as the writer is aware, has not been investigated.

For a number of years the writer has been interested in the archegoniates of California, especially the hepatics, and his attention has been directed repeatedly to the power shown by nearly all the species of resisting the long dry season which regularly prevails each year. In the region around San Francisco Bay, the dry season generally lasts from about the middle of May until late September or early October. Sometimes for fully six months no rain at all falls. This was the case in 1903, when from mid-April until October there was no rain at all, and not until November was the rainfall enough to start vegetation. Nevertheless, the growth of Hepaticae during the present season has been very luxuriant, and there is no evidence of any harm having resulted from the unusually protracted drought. In the bay region, however, there is seldom the excessive summer heat

[Vol. 4, No. 5, of Torreya, comprising pages 65–80, was issued May 13, 1904.]

long." Torrey * makes them "large, compressed." Chapman,† while making no statement for the species, has his "var.? Floridana" "orbicular." The more recent authors ‡ are all broad enough in their descriptions to cover both forms.

The few illustrations are quite as unsatisfactory, many of them being meaningless; Dillenius,§ Barton,‖ and Bigelow,¶ the best of them, however, represent the flat-seeded form.

Just what Linnaeus** had is not clearly defined by his description or by most of his citations; Dillenius' "foliis mimosae siliqua hirsuta" and plate, however, is clearly the flat-seeded form and may be considered as establishing this as the true *Cassia Marilandica* L. Martyn's †† plate, also cited by Linnaeus, is characterless.

As the several names‡‡ that have been considered synonymous with *C. Marilandica* L. are all referable to the flat-seeded form, or at least have no reference to the obovoid-seeded one, I propose to name the latter for Professor O. P. Medsger, through whose material my attention was first called to it, and would characterize the two species as follows:

Cassia Marilandica L.

Plant erect, perennial, herbaceous, 1–2 m. high, little-branched: stem pubescent, slightly if at all furrowed, yellowish green: leaves with a club-shaped gland near base of the petiole; stipules subulate-filiform, ciliate on their margins, caducous; leaflets 12–20, elliptical, unequally rounded at base, mucronate, with reflexed ciliate margins, yellowish green, glaucous beneath, 3–5 cm. long, one third as wide: inflorescence racemose, pubescent, axillary and terminal, flowers many: calyx-lobes ovate, somewhat petaloid: petals broadly spatulate to obovate, obtuse, bright yellow: sta-

* Torrey, Flora of the North and Middle Sections of the U. S. 1: 439. 1824.

† Chapman, Flora of the Southern United States, 124. 1897. [Ed. 3.]

‡ Wood, Gray, Britton, Small.

§ Dillenius, Hortus Elthamensis, 351, *pl. 260. f. 339.* 1732.

‖ Barton, Vegetable Materia Medica of the U. S. 1: 137, *pl. 12.* 1817.

¶ Bigelow, American Medical Botany, 2: 166, *pl. 39.* 1818.

** Linnaeus, Species Plantarum, 378. 1753.

†† Martyn, Historia Plantarum Rariorum, 23. *pl. 23.* 1728.

‡‡ *C. acuminata* Moench, Meth. 273. 1794; *C. reflexa* Salisb. Prod. 326. 1796; *C. succedanea* "Bell, ex herb. Balb.," DC. Prod., 2: 498. 1825.