Onoclea Sensibilis, forma obtusilobata

H. C. RIDLON

Regarding the so-called variety or form *obtusilobata* of the sensitive fern, there seems to be quite a difference of opinion as to the cause of this form, and thus I venture to give my own experience.

Seven years ago I found my first *obtusilobata* form growing among perfectly formed fertile and sterile fronds of the same fern, all growing close to a roadside thicket which afforded partial shade, and in a location which throughout the year was moist.

For five consecutive years I was able to find this form, then, after a lapse of two years during which the station was not visited, I again found the form. As this roadside was undisturbed by scythe or grazing cattle, I am unable to account for this re-appearance each year.

I have tried, without success, to produce this form by removing all normal fronds, also by growing in dry, sterile soil.

SPRINGFIELD, VT.

Mr. Ridlon presents a fresh bit of evidence on a still unsettled question—the cause of the "*obtusilobata*" forms of the sensitive and other dimorphic ferns. His evidence is of the more value because he is not only a careful observer, but an expert in growing plants; and his attempt to produce these forms by means of partial starvation arising from other causes than mutilation of the plant is, so far as the present commentator is aware, an original experiment.

A resumé of the evidence in regard to the cause of *obtusilobata* forms may be of interest here. In 1881 Prof. Underwood suggested that they were modified fertile fronds, and resulted from destruction of the sterile

fronds by mowing or otherwise.[1] In 1894, Prof. G. F. Atkinson, testing Underwood's theory, succeeding in producing them artifically by repeated cutting of the sterile fronds on certain plants. He concluded that Underwood was correct and that the variation was caused by semi-starvation, due to injury, which, so to say, compelled the plant to use its fertile fronds for leaf-functions as well as spore-bearing.[2] In 1881,[3] however, and again in 1898, in a paper read at the Boston meeting of the Fern Society, Mr. Davenport presented a considerable mass of evidence to show, on the one hand, that though experiments like Prof. Atkinson's might result in *obtusilobata* forms, they failed to do so more often than not; and, on the other, that plants growing under entirely normal conditions and with their full supply of sterile fronds frequently produced such forms and that the same plant, under apparently unchanged conditions, might have them one year and not the next. He argued that, though injury might produce them, it did so by stimulating a latent tendency which already existed in the plant and which might equally be developed by other, less obvious stimuli; and suggested that the tendency in question might be one toward evolutionary reversion to an earlier, non-dimorphic form. Evidence in support of his conclusion has been brought forward by Mrs. E. G. Britton, Rev. J. A. Bates (at the Boston meeting), Mrs. A. E. Scoullar,[4] W. A. Poyser[5] and now by Mr. Ridlon; and though some have tried, no one seems to have repeated Prof. Atkinson's experiment successfully.

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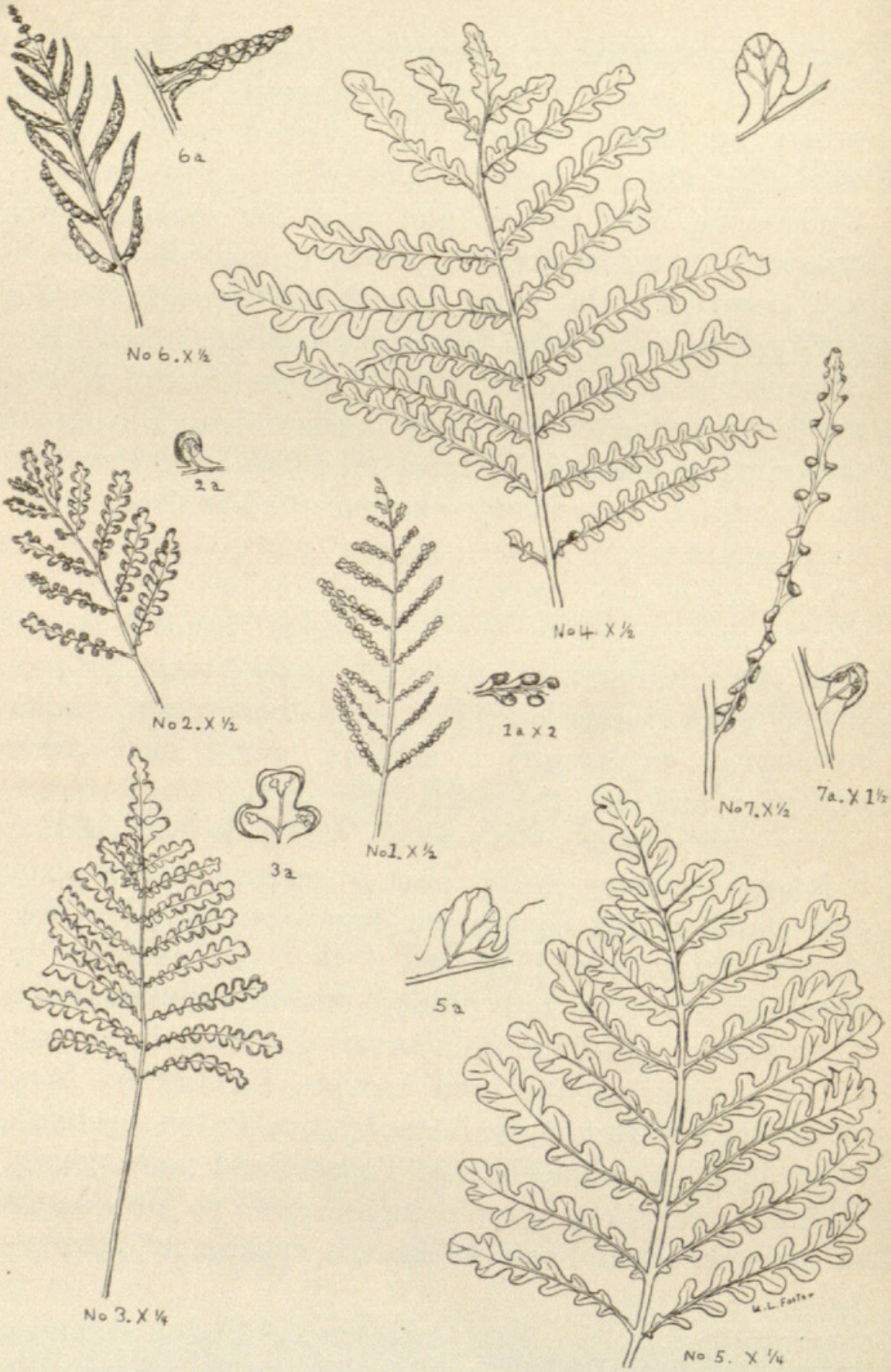
[1] Bull. Torr. Bot. Club 8: 101.
[2] See Fern Bull. 4: 33. 1896.
[3] Bull. Torr. Bot. Club 8: 109.
[4] Fern Bull. 17: 19. 1909.
[5] Fern Bull. 17: 76. 1909.



ONOCLEA SENSIBILIS, FORMA OBTUSILOBATA

Figs. 1 and 2 from specimens in herb. L. P. Breckenridge; figs. 3–6 from specimens in herb. H. C. Ridlon; fig. 7, one pinna from specimen collected by A. A. Eaton, now in the Gray Herbarium.

It may be added that, in the opinion of the writer, such variations are teratological in their nature. As such, they may be of great significance in the study of the nature and development of plant organs, but have little meaning for purposes of classification and should not be given separate names.

The accompanying illustration, kindly made for the Journal by Miss Una L. Foster, shows a very full series of gradations between normal fertile and sterile fronds.

C. A. W.

Several weeks ago I received from Miss Sarah F. Sanborn, of Concord, N. H., a number of fertile fronds of the Ostrich Fern which were partially developed as foliage fronds after the manner of the *obtusilobata* form of the Sensitive Fern. In regard to these, Miss Sanborn writes: "My Ostrich Ferns have grown for years on the east side of my house, but I never before saw such abnormal growths. I am inclined to think that the great quantity of wood ashes I used about the ferns had the effect noticed."

Here seems to be another bit of evidence in line with the above discussion. Have any of our readers further evidence bearing on the matter? If so, they are invited to send it in to the editors.

E. J. W.

A Christensen Bibliography

Some time ago a list of the botanical writings of Mr. Carl Christensen was published in the Journal.[1] He has now sent us the following list, complete up to the end of 1914. It has already been printed, partly in his own work on Danish botanical literature, partly in the

[1] 2: 56. 1912.