

fear, to give vent to emotions for which we cannot account. We have no reason why we do these things—things perhaps we often regret after the occasion has passed—we can only classify them as instinct. It is undoubted that a child is entirely governed by stimuli up to a certain stage in its life—until the dawn of reason gradually breaks and we get development from the animal to the human plane.

In closing I would just like to draw attention to similar conditions in the plant world. Compare an animal, a child just born, for instance, in a darkened room with but one window, with a plant growing in a darkened place with but one loophole of light. Both turn instinctively to the light. In the former the reason implies a nervous system, but in the latter we are taught it is a purely mechanical process. And yet there is a similarity. Again, Huxley informs us that a frog, from which the brain has been removed, will retain its centre of gravity even when revolved. Compare this frog with a plant placed in an inverted position, with the root upwards and the stem downwards. If growth continues this plant will right itself and will grow normally. This cannot be explained, yet the fact remains that there is a similarity between the frog and the plant. And so on, we could find similar instances of comparison which only serve to show the great complexity of nature, and the uniformity of all things.

In such a short article, such instances as I have recorded open up a great field of conjecture; and, I for one, would be greatly interested to read accounts in this magazine of recorded observations which tend to illustrate the difference between animal instinct and reason.

PRELIMINARY LIST OF THE CRATÆGI OF THE OTTAWA DISTRICT.

BY HERBERT GROH.

Encouraged by the results which have attended the closer study of the Hawthorns in other parts of Eastern North America, and knowing that no such study had been made, as yet, at Ottawa, I was led, in the spring of 1909, to undertake systematically the collecting of material for this purpose.

For my first attention I chose the section of country reaching southward from the city to the Rideau River, and lying, roughly, between Bank Street on the east, and the Experimental Farm and the Hog's Back locks on the west. While not confining my work to these limits, I endeavoured to cover this area with some degree of thoroughness.



Specimens in flower were taken from the trees in June; and others, from the same trees, were taken for the fruit, when it matured. Notes were taken at the time of collecting, on such points of importance which might be lost in the drying, as the number of styles, the number of stamens, and the color of the anthers; and numbered tags were fastened to the trees when they were first visited to preclude the possibility of mistakes when returning to them later. Flowering and fruiting specimens were secured from about fifty trees, most of which showed some variation, which was the reason for their being selected.

Material of all the specimens was then submitted to Mr. W. W. Eggleston, of the New York Botanical Garden, an acknowledged authority on the genus and the contributor of the revision of *Cratægus* in Gray's New Manual, Seventh Edition. Mr. Eggleston has distinguished in this material fourteen species and varieties, and has regarded ten other specimens as hybrids.

In view of the incompleteness of the survey of the Ottawa district, so far accomplished, and also owing to the fact that further specimens have been collected this summer, which, together with a considerable amount of material collected earlier by Professor John Macoun, have still to be named, no treatment of the subject of Ottawa *Cratægi* can yet be attempted. A list is here given, however, which it is hoped may serve as a basis for the work which still remains to be done. The following species were collected by the writer in the localities indicated after each name.

CRATÆGUS.

ROTUNDIFOLIA Moench. E. of Dow's Swamp; Hog's Back; Victoria Hospital; E. and W. of Beaver Meadow.

ROTUNDIFOLIA Moench. var. FAXONI (Sarg.) Eggleston. Bank of Rideau River, W. of Billing's Bridge.

JACKII Sarg. Hog's Back locks.

MACROSPERMA Ashe. Glebe; Bank Street, Stewarton; Montreal Road, beyond Eastview.

ALNORUM Sarg. Woods in C. E. Farm Arboretum; Ottawa South.

GRAYANA Eggleston. S. of Dow's Swamp; Hog's Back; bank of Rideau River, W. of Billing's Bridge.

FLABELLATA (Bosc) Koch. Glebe; Harbord locks.

PEDICELLATA Sarg.? W. of Dow's Swamp.

POLITA Sarg. E. of Dow's Swamp.

SUBMOLLIS Sarg. W. of Dow's Lake; N., E. and S. of Dow's Swamp; near Hog's Back; Ottawa South.

BRAINERDI Sarg. var. EGGLESTONI (Sarg.) Robinson. Ottawa South; bank of Rideau River, near Hog's Back.

BRAINERDI Sarg. var. ASPERIFOLIA (Sarg.) Eggleston. E.

of Beaver Meadow.

MACRACANTHA Lodd. Glebe; Ottawa South; S. of Dow's Swamp.

PRAECOX Sarg. S. of Dow's Swamp.

MACROSPERMA Ashe. x ROTUNDIFOLIA Moench. Billing's Bridge.

MACRACANTHA Lodd. x MACROSPERMA Ashe. S. of Dow's Swamp.

MACRACANTHA Lodd. x CRUS-GALLI L. S. of Dow's Swamp.

MACRACANTHA Lodd. x PUNCTATA Jacq. Ottawa South; E. of Dow's Swamp.

MACRACANTHA Lodd. x. W. of Dow's Swamp; Hog's Back; Billings' Bridge; W. of Beaver Meadow.

NOTE.

PLANTS INJURED BY CREOSOTE.—For some time past considerable speculation has been indulged in regarding the curious and somewhat mysterious malady which has affected many varieties of plants in this city, the leaves turning black and falling before maturity. Roses, delphiniums, laurels, maples, ferns and some other plants, were the principal sufferers. The gardens in the vicinity, to the northward and eastward of the city creosoting plant, were amongst the first to suffer, last season being bad and the present season worse. Then last season the leaves of the eastern maples in front of the Union Club and the Presbyterian Church turned black and fell, and on examination I thought the infection to be of a fungous nature; this season they are only slightly affected, the streets in the vicinity having been paved last year with creosoted blocks.

A few days ago I was asked to look at the plants on the southern boundary of the Empress Hotel grounds. These I found to be in a very bad state and the suspicions I had entertained as to the cause seemed to be amply confirmed, viz., the exhalations from the creosoted blocks in Belleville Street. The plants on the northern boundary next to Humboldt Street, which street was also paved with creosote blocks, are not affected whilst those on the other or northern side, being the southern side of the Macdonald property, are badly affected. Our prevailing winds during the summer are from the south and southwest, and this fact seems to indicate that the creosote exhalations are directly responsible for all the injury. How plants can be protected adjoining newly paved streets I cannot say, but it is certain that much injury to gardens seems likely to result in the future from the cause mentioned.

Victoria, B.C., 29th July, 1910.

J. R. ANDERSON.



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