

calyx with its limb modified into down serving to carry the ripened fruit far away from its quondam home; the tubular, superior corolla of the disk, the stamens enclosing the style and united by their anthers—all these features aid in protecting the ripening fruit of the two-carpeted "inferior" pistils—inferior, because consolidated with calyx and corolla into one mass. The strap-shaped corolla is not in vain, nor is its colour blue, or in some species lilac, white, deep purple, or even pink, merely to please the human eye; in other words, the yellow disk and the blue, purple, pink, lilac or white rays, tube-shaped and strap-shaped, have their purpose, their use. This is to attract the eyes of insects, which, in their apparently aimless search for honey, dive down deeply into the tubular corolla, and in so doing, unwittingly attach some of the precious pollen of the anthers to parts of their bodies. Visiting the next flower, or the next head of the Asters and their friends, the feathery stigmas at the top of the style detach the pollen before the insect can explore the depths of the corolla—each little feather fulfilling the purpose of appropriating its own share. Are not indeed the feathery stigmas protruded above the other organs or "exserted" for this very purpose? Here, too, one will note how the ray-flowers are compensated for the want of stamens. Owing to their differing in colour from the disk, owing to the greater length of their corollas, owing to their situation, fringing, coasting so to speak, the edges of the disk, the chances for their fertilization are greatly in their favour.

Only of late years has it been shown that to insects and to the wind are due the healthy life resulting from "cross-fertilization." Only of late years has been shown the intimate connection between the brilliant colours and the sweet odours of the

flowers on one hand, and the senses of bees, butterflies, moths, etc., etc., on the other. Only of late years has it been shown that to secure "cross-fertilization," the plant-energy of the wind-swept flowers is expended, not in the production of brilliant corollas, where they would be useless, and indeed rapidly destroyed, but in the production of super-abundant masses of pollen. Yet these are facts, marvellous facts which stare us in the face. And the question is, shall we interpret them as links in a chain, as elements of a scheme, divinely planned and worked out; or shall we ascribe them to a mere gratuitously conjectural, entirely hypothetical and undemonstrated desire on the part of the plants for improvement and progress? to a blind, yet intelligent forethought on the part of unconscious vegetable structures? Of this more anon. Given, however, a short, intense summer, a long autumn, plants to be perpetuated, developed and improved, and nectar-loving insects—and our Aster is adapted to these conditions, just as reason would require.

But our plant has more, much more to tell us. It is a member of a large genus, some of which, notably the red-stalked Aster (*A. puniceus* Linnaeus), brave the cold climate of the far north, while others love the sunny south. Even here in Ontario, one species (*A. Nova Angliæ*, L.) prefers the rich soil and the warm climate of the north shore of Lake Erie; and when found farther north, as it is abundantly near Toronto and Hamilton, as well as east of Toronto, it invariably chooses low situations. A handsome, well-marked species with intensely yellow disks, rich dark-purple to pink (!) rays, heads in crowded bunches or "fastigate corymbs," leaves eared and almost clasping the hairy, clammy stem, a species rarely attaining with us a greater height above the sea-level than four hundred feet.