TASMANIAN ONAGRACEAE.
(PLATES V., VI.)

By L. Rodway, Government Botanist.

(Read 14th June, 1909.)

We have in Tasmania representatives of only two genera belonging to this family, Oenothera and Epilobium. Of the first genus we have only one species. It is a small herb of very restricted distribution, and was described by Sir J. D. Hooker in the Flora Tasmaniae. It was gathered by R. Gunn in marshy land about Marlborough in 1841, and does not appear to have been recorded since till the early part of this year, when it was found by G. Weindorfer and Dr. Sutton in the vicinity of Middlesex Plains. It is confined to the western portion of Tasmania, and neither it nor any other native member of the genus has yet been recorded from Australia or New Zealand. Bentham considered this species to be very close to, if not identical with, O. dentata, Cav., which is a native of Western America, extending from South Chili to California.

Our plant does not recall the idea of an Oenothera, as the calyx tube is just as short as it is in our Epilobiums, and would be readily taken for a small member of that genus, but the fruit and seeds are typical. In Hooker's description he gives the colour as purplish, but queries it. Bentham unhesitatingly states it as yellow. In Weindorfer's specimens they are all of a pale purple pink. The colour is very liable to be lost in herbarium material, and it is probable Bentham was misled from the prevailing colour of the genus. The anatomy appears to strictly conform to the type of the family. The cortex is relatively thick and soft, many of the cells being packed with acicular raphides. The phloem is not gathered in well defined bundles. The Xylem is copious in a continuous ring. There is a small pith with Intra-xylary phloem. The indumentum consists only of simple woolly hairs. The dentations of the leaves terminate in water-pores.

In the genus Epilobium we have six fairly well-marked forms, and they show an affinity with those of New Zealand. Four names other than those here adopted appear in standard works, namely, E. tetragonum, L.—A European plant that probably does not occur south of the equator. It was used to denote most of our larger forms before their distinctness from northern types was recognised. E. alpinum, L.—Some of our alpine forms appear identical with this, but it may be a coincidence, the two diverge materially in their common habitats. The typical form of E. glabellum, Forster, has not yet been gathered in Tasmania, though the name has been made much use in describing our forms. In the Flora Novae Zelandiae Hooker described a plant as E. tenuipes. He also grouped under the name two of our closely-allied plants, but the typical New Zealander does not appear to grow here. Our six species as here treated are:—

Ep. pallidiflorum, Sol.
Ep. Billardierianum, Ser.
Ep. junceum, Sol.
Ep. Gunnianum, Haussk.
Ep. confertifolium, Hook, f.
Ep. Tasmanicum, Haussk.

Our E. pallidiflorum conforms to the New Zealand type except that its flowers are pink, turning purple when dried, instead of white. E. Billardierianum is one of our commonest forms. It appears at nearly all altitudes, and varies somewhat, but it is the only form whose leaf is margined with numerous acute, irregular teeth. In the Flora Hooker figured our large flowered mountain plant as this, but even if he wished to include it he was in error figuring it as the type. E. junceum is our common form in lowland pastures and dry places, leaving the swamps to the last two. It has the same pale colour, due to woolly hairs, that marks the New Zealand plant. E. Gunnianum is the name given by Professor Haussknecht to the large floweret plant figured by Hooker. It is not a purely alpine species, and when it descends the flowers become reduced, but never as much so as in E. junceum, though it much resembles the latter in the leaves, which are bordered by few, remote, rather blunt serrations. E. confertifolium is essentially a plant of

sub-alpine moors. It trails for a few inches on the ground, has thick, narrow, oblong, overlapping leaves bordered by few teeth; its fruit is dark, glabrous, and dumentum on the stem and peduncle. It is one of the forms included by Hooker in E. tenuipes. The other is E. Tasmanicum, of Haussknecht. This is certainly rather close to the last, but the leaves are broad, entire on the margin or nearly so, and always stalked; the fruiting peduncle is very elongated, and the plant is quite glabrous. The appearance is very much that of the typical E. tenuipes, only that has very narrow leaves and smooth seeds. E. Tasmanicum occurs in New Zealand, but it is a rare species, and neither Kirk, Cheeseman, nor Haussknecht himself appear quite clear as to its characters.

All our species have broadly clavate stigmas and minutely papillose seeds. From descriptions of Epilobium, students would infer that the sepals are free or nearly so; in all our species the calyx is distinctly tubular at the base. Petals always notched in the centre. For the use of collectors I include a short analysis of the plants:—

Oenothera Tasmanica, Hook, f. Fl. Tas., a small, weak, vaguely-branched herb, decumbent or ascending not long stalked; it generally bears a fair amount of in-amongst undergrowth, 2 to 4 inches high, slightly pubescent, with simple hairs. Leaves mostly opposite, narrow, oblong to ovate, of a thin texture, narrowed into a very short petiole, obtuse, about ½ inch long, bordered by a few small distant serrations. Flowers few, single in the axils, nearly sessile, about as long as the leaves. Calyx about 2 lines long, the lobes as long as the tube, the whole deciduous. Petals purple pink, rather exceeding the calyx obcordate, inserted at the orifice of the tube. Stamens eight, the four opposite the petals shorter than the sepaline ones, arising from the base but adherent to the top of the tube; anthers short, broadly oblong, minutely apiculate. Capsule about ½ inch long, lanceolate, obscurely tetraquetrous, nearly sessile, often slightly curved. Seeds minute, hairless, obovate, convex externally.

In wet sub-alpine places. Marlborough, Middlesex Plains.

In these Epilobiums the calyx has a short tube, the lobes are blunt to subacute indifferently, petals conspicuously notched, stigma broadly clavate, mature fertile seed papillose.

E. pallidiflorum, Soland., ex A. Gunn, Precurs. n. 550. Simple, erect from a shortly decumbent base, 1 to 2 feet, young parts delicately pubescent. Leaves opposite, sessile, lanceolate, narrowed or broad towards the base, 1 to 2 inches long, bordered by small, distant serrations. Flowers in many upper axils, exceeding the leaves. Sepals, ½ inch. Petals ¾ inch, pink, becoming purple when dry. Capsule 2 inches on a stalk rather shorter than the leaves.

Common in swamps.

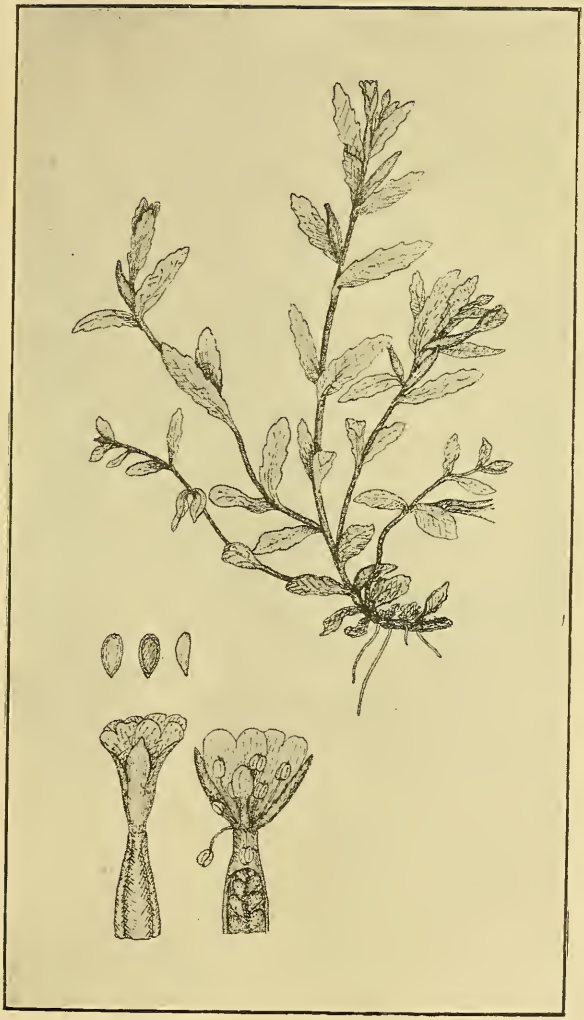
E. Billardierianum, Ser., in D. C. Prod., iii., 41. Decumbent at the base, emitting long, slender stolons with distant pairs of small ovate leaves, then erect, or flaccid in undergrowth, 1 to 2 feet high, delicately pubescent. Leaves ¾ to 2 inches long opposite, ovate, pubescent on the ribs, subacute, sessile, with an almost cordate base, margin with numerous small, unequal, acute teeth. Flowers in many of the upper axils similar to those of E. junceum, but larger. Capsules 2½ inches long, pubescent, on stalks shorter than the leaves.

Common in damp situations at all altitudes except mountain tops.

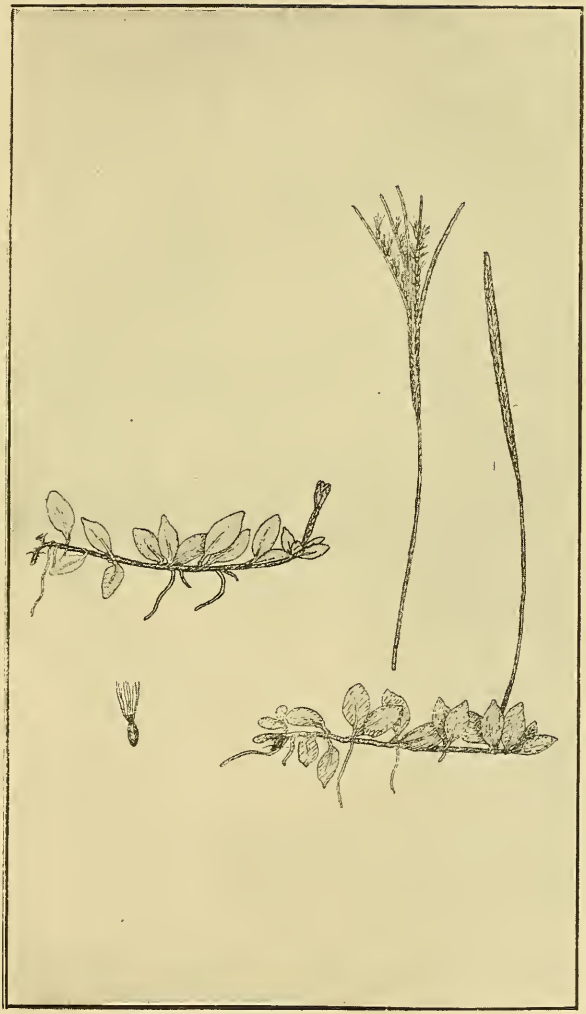
E. junceum, Soland., in G. Forst., Prod. n. 516. Erect or sub-decumbent, much branched towards the base, about 1 foot high, most parts clothed with a delicate white pubescence. Leaves mostly alternate, ½ to ¾ inch, narrow lanceolate, tapering at the base, bordered by a few distant, bold serrations. Flowers in many axils, exceeding the leaves. Calyx, 1 to 2 lines long. Petals slightly exceeding the sepals; light purple to nearly white. Capsule 2 to 3 inches; slender, on a stalk about one inch long.

Very common in lowlands in dry as well as damp situations.

E. Gunnianum, Haussk., Mono. Epilob. Erect from a decumbent base, ½ to 1 foot; stems and capsules minutely pubescent. Leaves mostly opposite, sometimes three together; narrow oblong, sessile or shortly stalked



OENOTHERA TASMANICA, HOOK. F.



EPILOBIUM TASMANICUM, HAUSSK.

usually, but not always rather thick, obtuse; ½ to 1 inch long, generally glabrous, bordered by distant serrations, which are usually small, sometimes bolder, at others obsolete. Flowers in the upper axils, few, exceeding the leaves. Calyx 2 to 4 lines. Petals, 4 to 6 lines, purplish to white. Capsule, 1 to 2 inches on a relatively short stalk.

Common, but principally at a high altitude.

E. confertifolium, Hook., f. Fl. Antarc. i. 10. Prostrate or ascending at the tip; 1 to 4 inches long; slightly, generally bifariously, pubescent. Leaves narrow, oblong, mostly opposite and secund; glabrous, shining, thick; ½ to 1 inch long; upper ones sessile or shortly stalked; the petioles of the lower ones often ½ inch long, margined with few distant serrations. Flowers few, exceeding the leaves on a short pubescent stalk, the ovary dark, glabrous. Calyx, 1 to 2 lines. Petals not much exceeding the sepals; pink, rarely white. Capsule, 1 to 1½ inches long, the stalk seldom as long as the leaves.

Common on mountain plateaux.

E. Tasmanicum, Haussk., Mono. Epilob. Prostrate, rooting at the nodes, all parts glabrous. Leaves broadly ovate, obtuse, opposite, stalked; ¼ to ½ inch long, shining; margin entire or with obsolete serrations. Flower usually solitary, exceeding the leaves, shortly stalked. Calyx, 1½ lines long. Petals about as long as the sepals, usually white. Capsule about 1 inch long, on a slender stalk, often exceeding 2 inches. Seeds papillose.

Franklin River, Picton River, Mount Humboldt.