# VIEWS ON THE AFFINITY OF ACRADENIA.

By Ferd. Mueller, Ph.D.,M.D., F.R.S., Corr. Member of the Royal Society of Tasmania.

Among the few endemic genera of Tasmanian plants, Acradenia is one of the most remarkable. Its only representative, Acradenia Frankliniæ, Lady Franklin's tree, was discovered by Dr. Jos. Milligan, on Franklin's River, in 1842, and phytographically defined by Mr. Richard Kippist, in 1852. (Transact. of the Linn. Soc. XXI., 200-207, t. 22). The precise position of this plant among allied genera remained hitherto unfixed, the perfect fruit being unknown. By the circumspect kindness of Mr. F. Abbott, the zealous Director of the Botanic Gardens of Hobart Town, the writer has very recently been favored with the opportunity of examining all parts of the fruit, and thus to point out the affinities of the genus. In the absence of any complete record of the carpological characters, it may not be out of place to define these before the comparisons are instituted.

## *Acradenia* Kipp.

Calyx persistent, Petals deciduous. Carpids free, 5 or rarely 6, almost coriaceous, quadrate-ovate, about 4 lines long, outside everywhere closely appressed-downy, at the outer angle of the truncate vertex apiculate but not rostrate, along the inner side and the vertex dehiscent, often only one or two ripening. Endocarp bivalved, elastically secedent, short saccate at the base. Placental membrane minute. Seeds singly ripening in each carpid, about $2\frac{1}{2}$ lines long, smooth, cartaceous. Albumen, a thin imperfect stratum surrounding the straight embryo. Cotyledons ovate, plane-convex, much thicker than the albumen. Radicle exceedingly short, superior.

From these notes it will be unexpectedly apparent that Acradenia must be excluded from the Boroniaceous tribe of Rutaceæ, with which it was temporarily arrayed, the main characteristic of that group being a cylindrical embryo, with a conspicuous radicle lodged in a large albumen. In transferring Acradenia to Xanthoxyleæ, of which tribe no other forms occur in Tasmania, it is but right to point out, that almost with equal justice it might be drawn to the tribe

Diosmeæ, in which the typical genus Diosma, though so dissimilar in habit, has many characters in common with Acradenia, its structural differences consist in its conspicuously 5 lobed disk, its pentandrous flowers, and the total absence of the albumen.

It remains now to trace the nearest affinities of Acradenia among Xanthoxyleæ. Pilocarpus, confined to tropical America, possesses 4-5 stamens, it has moreover the calyx merely minutely toothed, and the flowers are racemose or spicate. But these notes become not singly but only collectively of any value for generic separation as demonstrated by Euodia, Boronia and Eriostemon. Among Australian Xanthoxyleæ, Pagetia (F. Muell. fragm. phytogr. Austr. V, 178-215), differs in the plurality of ovules, in the adnate endocarp, and in the absence of albumen. Euodia (combined with Melicope) has a tetrapetalous carolla, a long testa, a copious albumen, foliaceous cotyledons, and a conspicuous cylindrical radicle. Bosistoa (F. Muell. in Benth. fl. Austr. I. 359,) next to which Acradenia must be placed, though often distinguished by pinnate leaves, shows these occasionally, if not frequently, reduced to three leaflets, and it would not be surprising if Acradenia like some Boroniæ was found to vary in this respect also. The petals of Bosistoa are valvate in bud, a character of little moment in the mutual relation of genera and even species, of Rutaceæ; the carpids are large, a note of no generic importance though remarkable in this instance, and the albumen is entirely wanting.

To these distinctions so little importance can be attached that the writer has been induced to locate Bosistoa sapindiformis as Acradenia Bosistoi (Australian vegetation, indigenous and introduced, considered in its bearing to territorial resources and settlement p. 29) under the Tasmanian genus. Discoveries of new allied forms in the jungles of East Australia may draw the connection between these plants still closer.

The two localities in which Acradenia Frankliniæ is known, are the vicinity of Port Davey and of Port Macquarie, but it may be presumed that this noble and rare plant, so worthy to bear the name of the high-minded Lady Franklin, occurs in many of the interjacent deep forest ravines, where it is likely to rise to a stately height.

Melbourne Botanic Garden,
12th February, 1867.