XV.—*On Australian and Tasmanian Umbelliferous Plants. By* Dr. Ferdinand Mueller, *Government Botanist of Victoria.*

Of the numerous paradoxical plants which characterize the Flora of Australia to such a great extent, those of the Umbelliferæ are not the least interesting; and I beg to review briefly on this occasion the various members of this order, which, through the exertions of many a naturalist, became successively known from Australia and Van Diemen's Land.

In Labillardière's *Novæ Hollandiæ Plantarum Specimen*, (published in 1804), we meet with the first account of the curious genus *Actinotus*. He describes and figures also *Daucus brachiatus* Sieber, (under the name *Scandix glochidiata*), *Apium prostratum* (the native celery), *Eryngium vesiculosum*, and three species of *Trachymene* as *Azorellas*, to which genus, indeed, they are closely allied. In 1805 a second species of *Actinotus* from New South Wales was defined by Sir James Smith with the original one, under the name of *Eriocalia*, but it was reduced to the older genus of Labillardière by the illustrious Robt. Brown, in his appendix to Capt. Flinders' voyage (1814). To Rudge we owe in a paper issued by the Linnean Society of London, (1811), the proper definitions of the genera *Trachymene* and *Xanthosia*, and Sprengel, Sieber, and De Candolle added to the former genus, Cavanilles having previously referred one species to *Azorella*. Achilles Richard added (in 1820) to our knowledge of these plants various species of *Hydrocotyle*, principally supplied by Robt. Brown; and Allan Cunningham

characterized in Field's Geographical Memoirs of New South Wales (1825), his *Eryngium ovinum*. The invaluable *Prodromus* of De Candolle brings in the fourth volume (published in 1830) important additions; the genera *Dimetopia* and *Astrotricha* are here for the first time distinguished, and new species are added to *Hydrocotyle, Trachymene, Xanthosia* and *Eryngium;* and *Helosciadium leptophyllum* is shown to be an Australian plant; Sir William Hooker having previously given in the *Botanical Magazine,* (t. 2875), publicity to two species of De Candolle's genus *Didiscus*. From the collections of Bauer, Cunningham and Baron Huegel, new contributions were made to the Australian *Umbelliferæ* by the labours of Bentham, incorporated in the *Enumeratio Plantarum Novæ Hollandiæ Austro-occidentalis* of Huegel (1837), by which the genera *Hydrocotyle, Didiscus, Trachymene, Leucolæna* or *Xanthosia, Astrotricha* and *Actinotus* became augmented. The Australian species of *Caldasia (Caldasia eriopoda* of De Candolle's *Prodromus)* a plant which exhibits the most extraordinary varieties, changed its preoccupied generic name into *Oreomyrrhis* in Endlicher's celebrated *Genera Plantarum* (1840); *Pentapeltis,* previously (1857) published as *Leucolæna* by Hooker, and afterwards elevatedby Bunge to generic rank, forms here a sub-genus ; whilst *Cesatia,* a genus seemingly near to *Didiscus,* received its characteristics by the same author in the annals of the Vienna Museum. In the important work, edited 1845 by Lehmann, on the Plants of Preiss from Western Australia, a work so replete with novelties, Bunge made us acquainted not only with new *Hydrocotyles, Trachymenes,* and *Xanthosias,* and with two *Eryngiums,* perhaps also new, but he discriminates also the genera *Schænolæna* and *Platysace,* and unites *Pritzelia* of Walper to *Dimetopia.* Mr. Ronald Gunn's and Dr. Milligan's

zealous investigations of the Tasmanian Flora enabled Dr. Joseph Hooker to elucidate with his usual skill the new genera *Hemiphues, Diplaspis* and *Microsciadium* in the sixth volume of the London Journal of Botany (1847), together with new Tasmanian *Hydrocotyles;* the same famous Botanist having introduced *Didiscus humilis* and *Xanthosia dissecta* into the *Icones Plantarum* a while before; and in his admirable Flora of New Zealand he identifies the Australian *Orantzia* with an American species.

In the year 1847 we find proved in Schlechtendal's *Linnæa* the existence of the European *Sium angustifolium* in Australia, from specimens sent by Dr. Behr; and we observe nearly simultaneously an account of a new *Dimetopia* by Bunge in Schlechtendal's and Mohl's *Botanische Zeitung;* two other species of that genus are noted by the same acute botanist the year before in an index of plants cultivated in the Botanic Garden of Dorpat. The next contributions are chiefly from the West Australian collections, prepared by the venerable Drummond, which offered to Turczaninow the opportunity of enriching the system of umbelliferous plants with additional species of *Hydrocotyle, Didiscus,* (referred by him to *Dimetopia), Trachymene, Xanthosia* and *Platysace,* the diagnostics of which appeared in the 22nd volume of the *Bulletin de la Societé Imperiale des Naturel de Moscou,* and are reprinted by Walpers in his useful *Annal. Botan. System.,* a periodical which we regret seeing discontinued after the death of its laborious and ill-supported author, and which was formerly the principal source of information to botanists abroad and to travellers who had no direct access to numerous botanical works, for which the *Repertorium* and the *Annales* of Walpers formed a valuable substitute. In the 1st volume of the latter, (issued 1849), we observe the genus *Microsiadium*

inserted as *Oschatzia,* since the Hookerian appellation was pre-employed by Boissier for the distinction of a new oriental umbellate.

During the botanical exploration of the colonies of South Australia and Victoria, (from 1847 till 1855), it fell to the share of the author of this memoir to disclose new forms of *Hydrocotyle, Didiscus,* and *Dimetopia,* to point out the range of the Tasmanian genera *Dichopetalum, Oschatzia* and *Diplaspis,* as far as the alps of the Australian continent; and also the occurrence here of *Pozoa, Seseli* and *Aciphylla,* the latter combinable with *Gingidium,* both established simultaneously in Forster's *Characteres Generum Plantarum* as early as 1775. Definitions of the last mentioned species are partly given in the 25th volume of the *Linnæa,* and partly in the Transactions of the Philosophical Society of Victoria, or of those of the Victorian Institute. Dr. Joseph Hooker refers the genus *Pozoopsis* of the *Icones plantarum,* as a second species, to *Diplaspis,* in his *Flora of Tasmania,* and states the approximate number of Australian *Umbelliferæ* as 120, from which remark it appears that several plants of this order continued undescribed, although existing in herbaria; and, indeed, several unknown to botanists are mentioned in the works of travellers. Thus, Allan Cunningham speaks of a North-west Australian *Azorella* in the appendix to King's *Inter-tropical Survey of Australia* as being "remarkable for its gigantic herbaceous growth."

The last expedition through the intra-tropical zone of this country, so ably conducted by Mr. Augustus Gregory, has but furnished a limited number of plants belonging to *umbellatæ;* yet, perhaps, even more than might have been expected from the known geographical distribution of this order. As new, I may mention a *Hydrocotyle,* two *Eryngia,* four *Didisci,* and a genus which may be distinguished (as

Platycarpidium) from *Astrotricha* in deciduous petals, from *Trachymene* in flat and smooth carpels, from *Platysace*, as far as the immature state of the fruit permits me to judge, by the want of vittæ, and from *Didiscus* and most of the allied genera by a tall shrubby habit, so unusual in this order, and, finally, in a paniculate disposition of its umbels, of which the greater number, notwithstanding their being hermaphroditical, remain perfectly sterile.

Besides the description of the new *Eryngia*, I beg to submit an enumeration of all the species of *Didiscus* with which we are at present acquainted. Those of the sub-genus *Hemicarpus* have been considered formerly by the author of this treatise as constituents of a new genus, and are described as such in Hooker's *Kew Garden Miscellany* of this year. Observing, however, on a re-examination of all the material now at my command, that one of the mericarps, sometimes in several species of *Didiscus*, and often in *Didiscus pilosus*, remains undeveloped,—I prefer now to reduce *Hemicarpus* to this genus.

Thus another is added to already numerous instances to prove how much often the best characteristics, which are adopted in botanical science for the division of species into groups, fluctuate. Nature, which created but species, steps with an easy pace over the arbitrary generic limits within which we narrow and unite for the facilitation of study every complixity of closely allied forms. We will ever, therefore, remain at variance in opinion what limits to assign to genera, but we ought by useful research to arrive at last at one and the same result as to the true precincts of species.

Eryngium plantagineum.

Erect, glabrous; stems furrowed, the lower part leafless, the upper part paniculate; radical leaves long or lanceolate-linear, entire or with remote thorny teeth or with narrow

segments; leaves of the stem pinnatifid, with linear segments; flower-heads cylindrical, on long peduncles, terminal, crowned by simple paleæ; leaflets of the involucre linear, mucronate, reflexed, scarcely of the length of the flower-head, as well as the paleæ undivided; paleæ linear-subulate, but little longer than the flowers; papulæ of the fruit blunt.

On the fertile basaltic downs around Peak Range.—Ferd. Mueller.

Amongst Australian species nearest approaching to *E. angustifolium* (D. C. *Prodr.* iv. p. 95); but nearer allied yet to the South American *E. coronatum* (Hook. and Arn. Bot. Misc., iii. 350).

Eryngium expansum.

Procumbent, glabrous; stems streaked; radical leaves rhomboid-cuneate, deeply toothed; stem-leaves broad-rhomboid, deep-trifid; their lobes broad-cuneate, incised-dentated; flower-heads small, nearly globose, axillary and terminal, on very short peduncles or sessile; leaflets of the involucre longer than the flower-heads, linear-subulate, as well as the paleæ undivided; papulæ of the fruit acutely pointed.

On the banks of the Dawson and Burnett Rivers.—Ferd. Mueller.

Similar to *E. vesiculosum* (Labill. Nov. Holl. Specim., i. p. 73).

Didiscus. D. C.

Sect. I. *Teleiocarpus;* Ferd. Mueller. Both mericarps fertile or one rarely undeveloped.

1. *Didiscus cæruleus;* Hook. Bot. Mag., t. 2875. Western Australia.
2. *Didiscus pilosus;* Benth. in Hueg. *Enum. Plant. Nov. Holl. Austro-occid.*, p. 54. Port Phillip,

Ferd. Bauer; Tasmania, Gunn; Gipps' Land, Ferd. Mueller; Mooni River, tributary of the Barwan, Sir Th. Mitchell.

B. paviflorus; Ferd. Mueller. Myall Lake, New South Wales, C. Moore.

3. *Didiscus albiflorus;* Cand. Prodr., iv., p. 72. Port Jackson.

4. *Didiscus procumbens;* Ferd. Mueller. Stems slender, prostrate; all leaves 3 or 5 parted, scantily hispidulous, segments bifid or trifid: their divisions rhomboid or ovate-lanceolate, deeply dentated; leaflets of the involucre imperfectly laciniated, glabrous, of equal length with the smooth capillar pedicels; teeth of the calyx triangular, blunt; petals white; mericarps minutely tuberculated.

Rare on the Brisbane River; W. Hill; Ferd. Mueller.

Easily to be distinguished from the preceding species in its flaccid, procumbent, distinctly striated stems, in nearly uniform leaves, broader leaflets of the involucre, and in blunt but not subulate teeth of the calyx.

5. *Didiscus humilis;* J. Hooker in *Icones Plantarum, t.* 304.

Sub-alpine localities of Van Diemen's Land; Backhouse, Gunn, Milligan, Lawrence, Stuart. Australian alps in humid grassy vallies at an elevation between 4000 and 6000 ft.—Ferd. Mueller.

Sect. II. *Hemicarpus;* Ferd. Mueller. One mericarp fertile, the other always undeveloped. *(Dimetopia,* sect. *Anisocarpæa,* Turczaninow in *Bulletin de la Societé des Naturel de Moscou,* xxii., part ii., p. 29. *Hemicarpus,* n. g., Ferd. Mueller in Hooker's *Kew Garden Miscellany,* 1857, fasc. i.)

6. *Didiscus setulosus;* Ferd. Mueller. *Hemicarpus didiscoides;* Ferd. Mueller, L. C. On barren plains and ridges of Arnhem's Land; Ferd. Mueller.
7. *Didiscus anisocarpus;* Ferd. Mueller. *Dimetopia anisocarpa;* Turcz., L. C. Western Australia; Drummond.
8. *Didiscus glandulosus;* Ferd. Mueller. Annual, glandulously pubescent; radical leaves dissected; lower stem-leaves 3-parted, upper ones trifid, divisions lanceolate or ovate-cuneate, in front deeply toothed or jagged; leaflets of the involucre from 13 to 20, linear-setaceous, fringed, of the length of the pedicels; petals white; fertile mericarp roundish-ovate, with a narrow keel, sterile one with two short subulate teeth.

   On the sandy banks of the Nicholson River, (Gulf of Carpentaria), and on Newcastle Range; Ferd. Mueller.

   B. leiocarpus. Nearly glabrous, segments of the leaves more numerous and narrower, fertile mericarp without tubercles.

   On the Burdekin River; Ferd. Mueller.
9. *Didiscus villosus;* Ferd. Mueller. *Hemicarpus villosus;* Ferd. Mueller, L. C. Sandstone tableland at the head of Sturt's Creek, N. W. Australia; Ferd. Mueller.
10. *Didiscus grandis;* Ferd. Mueller. *Dimetopia grandis;* Turczaninow, L.C. Western Australia; Drummond.
11. *Didiscus glaucifolius;* Ferd. Mueller, in Schlechtendal's *Linnæa*, xxv., p. 395. Rocky declivities of Elder's Range, near Lake Torrens, very rare. Ferd. Mueller.