### III. ON SOME SOUTH AMERICAN PROTEACEAE.

### By I. M. Johnston.

Euplassa occidentalis, sp. nov., arborea; ramis juventatis ferrugineotomentulosis solidis alternis lignosis; foliis abrupte pinnatis alternis 30-35 cm. longis 13-15 cm. latis patenti-erectis 4-jugis; petiolis cum rhachibus 20-23 cm. longis minute ferrugineo-velutinis striatis; foliolis oppositis vel alternis breviter petiolulatis obovatis vel obovato-oblongis 6-15 cm. longis 35-70 mm. latis obtusis integerrimis glabratis venosis bicoloribus supra nitidis subtus opacis, superioribus oppositis majoribus; stipulis nullis; racemis 15-20 cm. longis 3-3.5 cm. crassis quam foliae brevioribus dense strigosis in axillis superioribus solitariis; floribus albis geminatis patenter 4-5 mm. longe pedunculatis 1-3 mm. longe pedicellatis; alabastris rectis cylindricis 10-12 mm. longis basem versus dilatatis apicem versus axillariter gibbosis strigoso-canescentibus; sepalis 4 inaequalibus lineari-spathulatis intus glabris apicem versus abrupte acute subcucullate ovato-dilatatis; antheris subsessilibus ovato-oblongis acutis bilocularibus albis; ovario glabro vel sparsissime villoso; stylo glabro apicem versus compresso-dilatato; stigmate laterali rubescenti oblongo: glandulis 4 carnosis depresso-orbicularibus glabris; fructibus ignotis. - Ecuador: gold mine near Zaruma, between Portovelo and El Tambo, Prov. Oro, alt. 600-1000 m., Sept. 2, 1923, Hitchcock, 21,311 (TYPE, Gray Herb.).—Apparently most nearly related to E. inaequalis (Pohl) Engler, of eastern Brazil, from which it is readily distinguished by its well developed peduncles, straight style, longer and more distinctly lateral pubescent stigma, less pubescent longer sepals, and 4-jugate leaflets. It is the first species to be reported from west of the Andes and the only one outside of Brazil and Guiana.

Euplassa bahiensis (Meisn.), comb. nov. Adenostephanus bahiensis Meisn. in Mart. Fl. Brasil. v. pt. 1, 94 (1855).

Euplassa incana (Klotzsch), comb. nov. Adenostephanus incana Klotzsch, Linnaea xv. 52 (1841).

Euplassa laxiflora (Meisn.), comb. nov. Adenostephanus laxiflora

Meisn. in Mart. Fl. Brasil. v. pt. 1, 94 (1855).

Euplassa legalis (Vell.), comb. nov. Dicneckeria legalis Vell. Fl. Flum. 41 (1825); Icones i. 105 (1827). Adenostephanus Sellowii Klotzsch, Linnaea xv. 52 (1841).

Euplassa nitida (Meisn.), comb. nov. Adenostephanus nitida

Meisn. in Mart. Fl. Brasil. v. pt. 1, 94 (1855).

Euplassa organensis (Gard.), comb. nov. Rhopata organensis Gard. in Hook. London Jour. Bot. iv. 135 (1845).

Euplassa pinnata (Lam.), comb. nov. Roupala pinnata Lam. Encyc., Tab. i. 243 (1791). E. meridionalis Salisb. in Knight, Prot. 101 (1809). Adenostephanus guyanensis Meisn. in Mart. Fl. Brasil. v. pt. 1, 95 (1855).

Roupala monosperma (R. & P.), comb. nov. Embothrium monospermum R. & P. Fl. Peruv. i. 63, t. 98 (1798). R. peruviana R. Br. Trans. Linn. Soc. ser. 1, x. 192 (1811).

## IV. STUDIES IN THE BORAGINACEAE.—III.

## By Ivan M. Johnston.

# 1. THE OLD WORLD GENERA OF THE BORAGINOIDEAE.

With the object of furnishing substantial foundation for phylogenetic speculations concerning the American eritrichioid borages, a study was recently undertaken of the Asiatic genera of the tribe Eritrichieae. This raised so many doubts concerning the naturalness of the currently accepted classification of the tribe, that it was finally found advisable to review all the Old World genera of the subfamily Boraginoideae in order that certain peculiar genera might be satisfactorily placed tribally. The results of this study of generic and tribal lines, consisting of new generic keys, generic bibliography, and various systematic and taxonomic notes, are presented in this paper. The work was done wholly in the library and upon the rich boraginaceous collections of the Gray Herbarium. Through the courtesy of Dr. W. R. Maxon, however, I have had the privilege of studying certain very helpful material contained in the United States National Herbarium.

The system of tribal classification suggested in this paper finds its justification in the observation, that from the Lithospermeae, through the Eritrichieae, to the Cynoglosseae there is a group of roughly concomitant morphological trends. The most evident of these is for the nutlets to shift from a basal or abradicular attachment, through a lateral one, to an attachment that is apical or adradicular; for the nutlets to change from usually smooth and rounded towards commonly margined and roughened or appendaged; and for the lobed or divided style and two stigmas to tend towards a simple style and solitary stigma. It is also a notable fact that corolla-structures, variable in the Lithospermeae, tend to become rather uniform in the Cynoglosseae, whereas the nutlets act in directly the opposite manner. The tribe Anchuseae is a natural group, appearing to represent an off-shoot from the Lithospermeae, and does not seem to belong to the phylogenetic line terminating in the Cynoglosseae.



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