

II. — A REVISION OF THE MEXICAN AND CENTRAL AMERICAN SOLANUMS OF THE SUBSECTION TORVARIA.

Dunal's subsection *Torvaria* of the genus *Solanum* has never been understood in America. Almost without exception the many diverse forms from equally diverse regions have been in American herbaria placed under the type species *Solanum torvum*, Swartz. This treatment as a single polymorphous species of all the plants of similar subgeneric character, — a course by no means without precedent in other sections of *Solanum* and scores of other tropical American genera, — has been due to a lack of authentic material and of any more concise statement of the specific characters than can be found in the rather ponderous monograph of Dunal. An accumulation of specimens from many sources has made it possible to divide the Mexican material passing in the Gray Herbarium as *Solanum torvum* into species of marked morphological characters and restricted geographical ranges. Most of these plants thus separated are found to agree very well with the descriptions of different species recognized from Mexico by Dunal in his monograph, though three species there characterized have not yet been identified with modern herbarium material. Doubtless these identifications of modern Mexican specimens with the old descriptions cannot all be taken as final, and a study of the type specimens, when it is possible to examine them, may prove the present conclusions to be in some cases inaccurate. Yet confidence is felt that the present understanding of the group is much clearer than that which has prevailed among recent students of Mexican botany. With the hope of simplifying the future study of the group the following synopsis is presented of the Mexican species of the section as now interpreted.

* Pubescence of flowering branches densely stellate-tomentose, hairs short and fine.

+ Pedicels bearing simple gland-tipped hairs among the stellate ones. (See also *S. ochraceo-ferrugineum*.)

S. TORVUM, Swartz. Branches slightly armed, canescent-ochraceous, the young parts, especially, ochraceous: leaves subcordate-ovate, shallowly sinuate-lobed, olive-green and stellate-scabrous above, canescent and stellate-tomentose beneath, 1 to 1.5 dm. long, 6 to 12 cm. broad, often sparingly armed on the midrib beneath, more rarely so above:

corymb generally bifid or trifid, many-flowered, cymose, the fruiting pedicels mostly ascending. — Prodr. 47; Dunal, Sol. 203, t. 23, & in DC. Prodr. xiii. 260. — Originally described from the West Indies, where it is common. In Mexico known only from the South. CHIAPAS, near Huehuetan, alt. 150 to 615 m., Feb. 22, 1896 (*E. W. Nelson*, no. 3830).

Var. RUBIGINOSUM, Dunal, l. c. 261, described from Guatemala, apparently differs from the species only in its more ferrugineous pubescence. — GUATEMALA, Rio Dulce, Depart. Livingston, March, 1889 (*J. Donnell Smith*, no. 1840): NICARAGUA (*C. Wright*).

S. HERNANDESII, Moc. & Sessé. More spiny throughout, the branches more loosely sordid-tomentose: leaves deeply and sinuately 5-7-lobed, the lobes sometimes pinnatifid: inflorescence at first subcorymbose, simple or bifid, becoming distinctly racemose: fruiting pedicels spreading. — Moc. & Sessé in Dunal, l. c. 266. — CHIAPAS, mountains near Tonalá, alt. 600 to 1,050 m., Aug. 14, 1895, table land about Ocuilapa, alt. 1,050 to 1,170 m., Aug. 21, 1895 (*E. W. Nelson*, nos. 2904, 3029): GUATEMALA, San Miguel Uspantán, Depart. Quiché, alt. 1,850 m., April, 1892 (*Heyde & Lux* in exsicc. *J. D. Smith*, no. 3446): NICARAGUA (*C. Wright*).

S. madreense. Shrubby, the young branches loosely stellate-tomentose with canescent or ochraceous hairs, and armed with straight or slightly curved prickles: leaves thick, ovate to ovate-lanceolate, acuminate, unequally subcordate at base, subentire or bluntly and shallowly sinuate-angulate, without the petiole (1 to 3 cm.) 5 to 15 cm. long, 4 to 13 cm. wide, above olive-green, stellate-scabrous, beneath a little paler and tomentulose, sometimes slightly armed; young leaves often aureate-tinged, and velutinous: inflorescences extra-axillary, in maturity 4 to 9 cm. long, simple or bifid, scorpioid-racemose; the pedicels glandular hairy, spreading and reflexed in fruit: calyx-lobes lanceolate, long-acuminate: corolla 2 cm. long, 3 cm. broad, whitish, deeply lobed, the lobes lanceolate or lance-ovate, acutish: filaments very short; anthers subequal, slender, 8 or 10 mm. long: the style somewhat longer: berry apparently black, glabrous, 1 to 1.5 cm. in diameter. — *S. diversifolium*, Wats. Proc. Am. Acad. xxi. 434, not Schl. *S. torvum*, Wats. l. c. xxii. 441, not Swartz. — The common representative of the group in the Sierra Madre and westward to the Pacific. SONORA, Sierra de los Alamos, March 25 to Apr. 8, 1890 (*Edw. Palmer*, nos. 363, 364): CHIHUAHUA, Hacienda San Miguel, 1885 (*Edw. Palmer*, no. 22): TEPIC, San Blas, June 6, 1897 (*E. W. Nelson*, no. 4335): SINALOA, Mazatlan,

Dec. 1894, and Isla Piedra, near Mazatlan, Dec. 31, 1894 (*Frank H. Lamb*, nos. 336, 336^a); Rosario, June 20, 1897, and foothills of the Sierra Madre, near Colomas, July 20, 1897 (*J. N. Rose*, nos. 1402, 1777): JALISCO, barranca near Guadalajara, June, 1886 (*Edw. Palmer*, no. 106); near Guadalajara, Nov. 14, 1888, May 27, 1891 (*C. G. Pringle*, nos. 2193, 5140 [type]); mountains near Talpa, alt. 1,200 to 1,540 m., March 7, 1897, Maria Madre Isl., May 3-25, 1897 (*E. W. Nelson*, nos. 4040, 4185): COLIMA, Colima, Jan. 9-Feb. 6, 1891 (*Edw. Palmer*, no. 1179): GUERRERO, Acapulco, Nov. 1894 (*Edw. Palmer*, no. 148).

+ + Pedicels not glandular.

++ Pubescence of branches and lower face of leaves whitish-lanate.

S. HARTWEGI, Benth. Essentially unarmed, branches rarely with a few spines: leaves from oblong-lanceolate to ovate, entire or sinuate-repand, acuminate, pale green above, the younger stellate-velutinous, the older scabrous: cymes many-flowered, the branches scorpioid; peduncles pedicels and calyx white-lanate; fruiting pedicels mostly erect: ripe fruit red, glabrous, 1 cm. or more in diameter. — Pl. Hartw. 68; Dunal, l. c. 262. *S. torvum*, var. *lanatum*, Dunal, l. c. 261. — Hartweg's original specimen was from Hacienda del Carmen. Dunal's variety was based upon a Guatemala specimen. The following are referred here: MEXICO, Valley of Mexico, Nov. 27, 1865 or 1866 (*Bourgeau*, no. 725): VERA CRUZ, Valley of Cordova, Jan. 16, 1865 or 1866 (*Bourgeau* no. 1671); region of Orizaba, May to July (*Bourgeau*, nos. 2408, 2556, *Botteri*, nos. 82, 1083, *Seaton*, no. 142); Santa Lucretia, Isthmus of Tehuantepec, Feb., 1895 (*C. L. Smith*, no. 1071): OAXACA, hills near Oaxaca, alt. 1,850 m., Sept. 8, 1894 (*C. G. Pringle*, no. 4891); Monte Alban, alt. 1,690 m., Nov. 24, 1894 (*L. C. Smith*, no. 341); near Totontepec, alt. 1,690 m., vicinity of Choapam, alt. 1,170 to 1,385 m., vicinity of Yalalag, alt. 1,230 to 2,400 m., July, 1894 (*E. W. Nelson*, nos. 788, 835, 952); Tillantongo, Dec. 12, 1895 (*Ed. Seler*, no. 1591): GUATEMALA, San Siguan, Depart. Quiché, alt. 1,785 m., May, 1892 (*Heyde & Lux* in exsicc. J. D. Smith, no. 3446): COSTA RICA, Cartago, Prov. Cartago, alt. 1,300 m., Nov., 1887 (*Juan J. Cooper* in exsicc. J. D. Smith, no. 5872). Palmer's no. 637 from San Luis Potosi, 1878, may be an attenuated form of this.

++ ++ Pubescence ochraceous or fuscous.

= Branches more or less armed.

S. FENDLERI, Van Heurck & Müll. Arg. Sparingly armed: pubes-

cence of young branches leaves and calyx ochraceo-ferrugineous, pulverulent: leaves rhombic-ovate, shallowly sinuate-angled, 6 to 8 cm. long, 4 to 5.5 cm. broad: inflorescence closely flowered. — Van Heurck & Müll. Arg. in Van Heurck, Obs. 130. — PANAMA, Chagres, Feb., March, 1850 (*A. Fendler*, no. 254).

S. ochraceo-ferrugineum. Stems 1.5 to 3 m. high, armed with stout broad-based deltoid prickles: young branches leaves and calyces ochraceo-ferrugineous, densely velutinous-tomentose rarely a little glandular: leaves oblong-ovate, shallowly sinuate-angled or lobed, 7 to 16 cm. long, 4.5 to 12 cm. broad, paler and more tomentose beneath than above: inflorescence loosely many-flowered: calyx in anthesis 8 or 10 mm. long, deeply 5-parted into deltoid-lanceolate acuminate lobes: corolla 3 cm. broad: anthers slender, subequal, 6 or 7 mm. long: berries glabrous, 1 cm. or more in diameter. — *S. obtusifolium*, Benth. Pl. Hartw. 23, not HBK. *S. torvum*, var. *ochraceo-ferrugineum*, Dunal, l. c. 260. — GUANAJUATO, Guanajuato, 1837 (*Hartweg*, no. 204), 1880, 1883 (*A. Dugès*): TAMAULIPAS, San Luis Potosi to Tampico, Dec., 1878 to Feb., 1879 (*Edw. Palmer*, no. 639½); VERA CRUZ, old fields and recently cleared grounds, Wartenburg, near Tantoyuca, 1858 (*Ervendberg*, nos. 285, 485).

S. DIVERSIFOLIUM, Schlecht. Sparingly armed: branches petioles and inflorescences cinereous stellate-tomentulose: leaves oblong-ovate, bluntly acuminate, with rounded bases, olive-green and stellate-scabrous above, cinereous-tomentulose or pulverulent beneath, 7 to 20 cm. long, 4 to 12 cm. broad, subentire or slightly undulate, rarely shallowly sinuate: inflorescence subaxillary, simple or branched, becoming 6 to 9 cm. long, extremely floriferous, the pedicels after anthesis mostly strongly reflexed or drooping. — *Linnaea*, xix. 297; Dunal, l. c. 262. — Originally described from Papantla, VERA CRUZ. The following are referred here; Mexico, without locality (*Coulter*, no. 1245): SAN LUIS POTOSI, hills, Las Canoas, Aug. 21, 1891 (*C. G. Pringle*, no. 3901, doubtfully referred here): VERA CRUZ, Valley of Cordova, Dec. 26, 1865 or 1866 (*Bourgeau*, no. 1608); Orizaba (*Botteri*); near Motzorongo, Feb. 22, 1894 (*E. W. Nelson*, no. 149): OAXACA, Paso de Canoa, Tuxtepec, alt. 150 m., Aug. 28, 1895 (*Conzatti*, no. 133, *L. C. Smith* no. 669).

= = Branches unarmed.

S. Hayesii. A small tree: the young branches finely but densely invested with short ochraceo-cinereous stellate hairs: upper leaves geminate and unequal, ovate to ovate-oblong, acuminate, unequal and sub-

cordate or rounded at base, entire or slightly undulate, the larger 1.7 to 2.4 dm. long, 1.1 to 1.4 dm. wide, at first stellate-pubescent above, soon quite glabrous and lucid, cinereous-tomentose beneath; primary nerves 5 to 7 pairs; petioles thick, 2 to 4 cm. long: inflorescence extra-axillary, bifid or trifid, becoming 6 or 8 cm. long, the branches scorpoid-racemose, densely flowered, ochraceo-cinereous; pedicels in fruit becoming strongly deflexed: calyx in anthesis 2 mm. long, with short rounded lobes: corolla densely stellate without, 6 or 7 mm. high, barely 1 cm. broad, with long lanceolate lobes: anthers subequal, lanceolate, truncate, 3 or 4 mm. long: style slightly longer, sparingly stellate-pubescent: berry glabrous or sparingly puberulent, 1 cm. or more in diameter. — PANAMA, Chagres, Jan., 1850 (*A. Fendler*, no. 246); near Gatun, Dec., 1859 (*Sutton Hayes*).

* * Short stellate pubescence of flowering branches mixed with long slender naked hairs.

S. erythrotrichum. Strongly armed with deltoid mostly hooked stout prickles: branches densely reddish-tomentose with appressed stellate hairs and longer naked jointed trichomes: leaves oblong, acuminate, rounded at the base, subentire, 1 to 1.7 dm. long, 3 to 8 cm. wide, ferrugineous-green sparingly stellate and strongly rugose above, tomentulose beneath, at first rufescent, later cinereous, rarely armed on the midrib beneath; primary nerves 5 to 7 pairs; petiole 1.5 to 2.5 cm. long, rufescent: peduncle extra-axillary, 3.5 cm. long, few-flowered, rufescent; pedicels short (7 mm.), thickish: calyx in fruit deeply cut into lanceolate lobes 6 or 7 mm. long: fruit puberulent, becoming glabrate, about 1 cm. in diameter. — GUATEMALA, Coban, Depart. Alta Verapaz, alt. 1,325 m., Feb., 1888 (*H. von Tuerckheim* in exsicc. J. D. Smith no. 1381).

* * * Branches clothed with long stellate-tipped hairs with broad bases.

S. HISPIDUM, Pers. Armed with long stout hooked-prickles, and densely pubescent with ochraceous or fuscous distinct stiff trichomes: leaves ovate, subcordate or attenuate at base, 0.5 to 2 dm. long, subentire or with 5 to 11 sinuate lobes; above ferrugineous with distinct stipitate stellate hairs, or glabrate, and often with long sharp prickles on the nerves; beneath cinereous with similar hairs, the nerves often spiny. — Syn. i. 228; Dunal, l. c. 275. *S. stellatum*, Ruiz & Pav. Fl. Per. ii. 40, t. 176. *S. chrysotrichum*, Schlecht. Linnaea, xix. 304; Dunal, l. c. 276. — From the variable material now at hand it seems impossible to

keep *S. chrysotrichum* separate from Persoon's species. VERA CRUZ, Cordoba, alt. 830 m., Aug. 20, 1891 (*H. E. Seaton*, no. 395); Jico, July 16, 1893 (*E. W. Nelson*, no. 24): Orizaba, Jan. 28, 1894 (*E. W. Nelson*, no. 45): OAXACA, Calderon, alt. 1,850 m., San Juan del Estado, June 18, 1894 (*L. C. Smith*, no. 36); near Reyes, alt. 1,785 to 2,060 m., Oct. 24, 1894 (*E. W. Nelson*, no. 1785): CHIAPAS, near Tumbala, alt. 1,230 to 1,690 m., Oct. 20, 1895 (*E. W. Nelson*, no. 3331): GUATEMALA, Santa Rosa, alt. 925 m., June, 1892, San Miguel Uspantán, alt. 1,850 m., Apr., 1892 (*Heyde & Lux* in exsicc. *J. D. Smith*, nos. 3441, 3448): COSTA RICA, Cartago, alt. 1,650 m., Dec., 1887 (*Juan J. Cooper*, in exsicc. *J. D. Smith*, no. 5870).

Three species of the subsection *Torvaria*, described from Mexico, are still obscure and perhaps not recently collected. These are *S. amictum*, Moric. in Dunal l. c. 263; *S. rude-pannum*, Dunal, l. c. 264; *S. Lambertii*, Dunal, l. c. 268.

III. — SOME UNDESCRIBED MEXICAN PHANEROGAMS, CHIEFLY LABIATAE AND SOLANACEAE.

Pelexia Pringlei. Roots clustered, cylindric, whitish, tuberiform, 0.5 to 1 dm. long: leaves 3, at the base of the bracteate scape, long-petioled, with smooth entire oblong to ovate-lanceolate acuminate blades 8 to 12 cm. long, about 4 cm. wide: scape about 3 dm. high, sparingly pubescent above, with about 8 sheathing lanceolate bracts: spike 1 dm. long, rather loosely flowered: bracts lance-acuminate, 3 cm. long, much exceeding the ovary: sepals greenish, lanceolate, acuminate, two of them free and somewhat drooping, 2 cm. long, the others united to form a blunt galea; lip short and rounded, exceeded by the beak of the stigma; spur adnate to the ovary: anther ovate, bluntish, 5 m. long. —VERA CRUZ, wooded hills near Jalapa, alt. 1,230 m., April, 1899 (*C. G. Pringle*, no. 8122). Habitally resembling *P. setacea*, Lindl. (*Neottia calcarata*, Hook. Bot. Mag. t. 3403), but with adnate spur, and shorter blunter sepals galea and lip.

Scutellaria distans. Stems slender, flexuous, 3 to 4 dm. long, somewhat recurved-pilose on the angles; internodes rather long (3 to 5 cm.): leaves firm, sparingly appressed-pubescent or glabrate, fan-shaped, broader than long, upper from deltoid-ovate to rhombic-ovate,



Fernald, Merritt Lyndon. 1900. "A revision of the Mexican and Central American Solanums of the subsection Torvaria." *Contributions from the Gray Herbarium of Harvard University* (19), 557–562.

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