

ADDITIONAL NOTES ON THE GENUS AMASONIA. VI

Harold N. Moldenke

AMASONIA L. f.

Additional & emended synonymy: Diplostemma Neck. apud P. DC., Prodr. 7: 306, sphalm. 1838 [not Diplostemma Steud. & Hochst., 1838]. Tachigalea Griseb. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1030, in syn. 1895 [not Tachigalia Aubl., 1775]. Hassleria Briq. ex Moldenke, in Fedde, Repert. Spec. Nov. 46: 194, in syn. 1939. Hassleria "Briq. ex Moldenke" apud Hill & Salisb., Ind. Kew. Suppl. 10: 251, in syn. 1947. Diplostemma DC. apud Airy Shaw in Wills, Dict. Flow. Pl., ed. 7, 365, in syn. 1966. Amsonia Stearn, Humb. Bonpl. Kunth Trop. Am. Bot. 16, sphalm. 1968 [not Amsonia Walt., 1788].

Additional & emended bibliography: Scop., Introd. Hist. Nat. 169. 1777; L. f., Suppl. Pl., pr. 1, 48 & 294. 1781; J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 887, 890, 922, & 965. 1789; A. L. Juss., Gen. Pl., ed. 1, 109, 119--123, & 418 (1789) and ed. 2, 109, 119--123, & 418. 1791; J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 2, 2: 887, 890, 922, & 965. 1796; Lam., Tabl. Encycl. Méth. Bot. [Illustr.] 3: pl. 543. 1797; Raeusch., Nom. Bot., ed. 3, 378. 1797; H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 205 (1817) and ed. quart., 2: 253. 1818; Pers., Sp. Pl. 3: 355. 1819; Reichenb., Conspect. Reg. Veg. 1: 117. 1828; Voigt, Hort. Suburb. Calc. 473. 1845; Schau., Linnaea 20: 484. 1847; Schnitzl., Icon. Fam. Nat. Reg. Veg. 137. 1856; Griseb., Fl. Brit. W. Ind., pr. 1, 501. 1861; Bocq., Rev. Verbénac. 7, 49, 50, 54, 64, 69, 75, & 86 (thesis). 1862; Bocq., Adansonia, ser. 1, 2: 87, 110, 111, 117, 119, 121, 128--130, 134, 144, 149, 155, 156, & 163 (1862) and 3: 183 & 217--219, pl. 5, fig. 11--18. 1863; Bocq., Rev. Verbénac. 87, 110, 111, 117, 119, 121, 128--130, 134, 144, 149, 155, 156, 163, 178, 180, 183, & 217--219, pl. 5, fig. 11--18. 1863; Pfeiffer, Nom. Bot. 1 (1): 135. 1873; Benth. in Benth. & Hook. f., Gen. Pl. 2 (2): 1132--1136 & 1147. 1876; Anon., Handelsbl. Tuinb. Sempervirens 14: 201 & 204. 1885; Anon., Journ. Hort. & Cottage Gard., ser. 3, 10: 435--436, fig. 109. 1885; [Lebl], Illustr. Gartenzeit. Stuttg. 29: 193, pl. 26. 1885; W. Robinson, Garden 27: 130--131, pl. 479. 1885; Beck von Mannagetta & Abel, Wien. Illustr. Gartenzeit. 15: 68--69, fig. 9. 1890; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 103 & 769. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 156. 1894; Möller, Deutsch. Gärtner-Zeit. 9: 141--142. 1894; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1030 & 1032. 1895; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 23. 1901; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 419. 1906; M. Kunz, Anatom. Untersuch. Verb. 58--59. 1911; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1335. 1926; Benoist, Arch. Bot. Caen 5, Mém. 1: 258. 1931; Benoist, Bois Guyan. Franç. 259. 1933; Moldenke, Brittonia 1: 260. 1934; L. f., Suppl. Pl., pr. 2, 48 & 294. 1936; A. W. Hill, Ind. Kew. Suppl.

- 9: 14. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 416. 1939; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 23 & 419. 1941; Wangerin & Krause in Just, Bot. Jahresber. 60 (1): 636. 1941; Moldenke, Phytologia 2: 91. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 103 & 769 (1946) and pr. 2, 2: 1030 & 1032. 1946; Moldenke, Phytologia 2: 198--199 (1946) and 2: 246--247. 1947; Hill & Salisb., Ind. Kew. Suppl. 10: 12, 105, 227, & 251. 1947; Metcalfe & Chalk, Anat. Dicot. 1031, 1032, & 1040. 1950; Angely, Cat. Estat. Gen. Bot. Fan. 17: 2. 1956; Angely, Fl. Paran. 7: 4. 1957; Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 11. 1957; Anon., U. S. Dept. Agr. Bot. Subj. Ind. 15: 14353. 1958; Cuatrecasas, Revist. Acad. Colomb. Cienc. 10: 238. 1958; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 23 & 419. 1959; Angely, Liv. Gen. Bot. Bras. 35 & 37. 1960; Braga, Fl. Nordest., ed. 2, 99 & 100. 1960; Encke, Pareys Blumengärt., ed. 2, 2: 444. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 103 & 769 (1960) and pr. 3, 2: 1030 & 1032. 1960; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 611 & 689. 1960; Potzta in Encke, Pareys Blumengärt., ed. 2, 2: 439. 1960; Moldenke, Biol. Abstr. 36: 2311. 1961; Moldenke, Phytologia 7: 338--342. 1961; Runner, Rep. G. W. Groff Coll. 362. 1961; Angely, Fl. Bacia Paran. 22: 39. 1962; Graf, Exotica 3: 1483 & 1531. 1963; Griseb., Fl. Brit. W. Ind., pr. 2, 501. 1963; Hocking, Excerpt. Bot. A.6: 532. 1963; Melchior in Engl., Syllab. Pflanzenfam., ed. 12, 2: 437. 1964; F. A. Barkley, List Ord. Fam. Anthoph. 75, 138, 171, & 214. 1965; Moldenke, Phytologia 12: 6 & 21. 1965; Moldenke, Résumé Suppl. 12: 3. 1965; Van Donselaar, Wentia 14: 70. 1965; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 48, 306, 362, 365, 521, 1097, & 1099. 1966; Huinink, Wentia 17: 136. 1966; Encke, Schönst. Kalt & Warmhausfl. 393. 1968; Moldenke, Résumé Suppl. 16: 21, 22, & 27. 1968; Stearn, Humb. Bonpl. Kunth Trop. Am. Bot. 16. 1968; J. A. Steyerl., Act. Bot. Venez. 3: 156. 1968; Van Donselaar, Meded. Bot. Mus. Rijksuniv. Utrecht 306: 404. 1968; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 1: 8. 1969; Anon., Torr. Bot. Club Ind. Am. Bot. Lit. 3: 304, 306, & 308. 1969; Foley, Flow. World Wilson 254 & [325]. 1969; Lasser, Act. Bot. Venez. 4: 48. 1969; El-Gazzar & Wats., New Phytol. 69: 469, 473, 483, & 485. 1970; Goodland, Phytologia 20: 78. 1970; Soukup, Raymondiana 3: 26 & 38. 1970; Teunissen & Wildschut, Verh. Konink. Nederl. Akad. Wet. Natuurk. 59 (2): 28 & table 2. 1970; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 4: 826, 831, & i, map 1377. 1971; Moldenke, Fifth Summ. 1: 5, 111, 115, 122, 129, 131, 133, 139, 146, 147, 185, 354, 389, & 476 (1971) and 2: 526, 639, 755, 771, & 850. 1971; Teunissen & Wildschut, Meded. Bot. Mus. Utr. 341: 28 & table 2. 1971; Moldenke, Phytologia 20: 503 (1971) and 23: 418, 431, & 504. 1972; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 74 & 102. 1972; Stafleu, Internat. Code Bot. Nom. 354 & 378. 1972; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 9, 49, & 57--61. 1973; Moldenke, Phytologia 25: 235 & 503 (1973), 26: 499 & 511 (1973), and 28: 437, 438, 453, 463, 506, & 512. 1974; Troncoso, Darwiniana 18: 297, 299, 303, 307, 398--401, 408, & 411, fig. 38 & 39. 1974.

It should be noted that there is also a genus Diplostemma of Steudel & Hochstetter which is a synonym of Geigeria Griesselich in the Carduaceae. Although Airy Shaw (1966) credits this same generic name to De Candolle, consultation of the De Candolle reference shows that this author there plainly credits the name to Necker.

The Amsonia of Stearn (1968) is plainly the result of a typographic error -- Humboldt, Bonpland, & Kunth distinctly spell the name "Amasonia" in the work referred to by Stearn. Amsonia Walt. is a handsome genus in the Apocynaceae.

The generic name Tachigalea, accredited to Grisebach by Jackson (1895), occurs in the Grisebach work (1861) only as "Tachigalea campestris Aubl." -- an obvious error in spelling of Taligalea campestris Aubl. Tachigalia Aubl. is a genus in the Caesalpinia-ceae. This Grisebach reference has previously been cited by me, and by numerous other workers, as "1864", the title-page date, but pages 315 [bis] to 506 were actually issued in 1861.

According to Rickett & Stafleu (1960) "7156. Amasonia Limmaeus f., Suppl. 48, 294. 1781 sem. 2", typified by "A. erecta Limmaeus f.", is conserved by the International Code of Botanical Nomenclature over "Taligalea Aublet, Pl. Guiane 625. 1775", typified by "T. campestris Aublet." Stafleu (1972) also tells us that the type species of Amasonia is A. erecta L. f. and of Taligalea is T. campestris -- both of these binomials are regarded by me as synonyms of Amasonia campestris (Aubl.) Moldenke. Barkley (1965) lists Hassleria among the valid genera of Verbenaceae, but in my opinion it is a complete and undoubted synonym of Amasonia.

Encke (1960) records the common German name for the members of this genus as "Amasonie" and gives the following description of the group: "(Thomas Amason, amerikanischer Reisender, wahrscheinlich des 18. Jahrhunderts). Halbsträucher, mit wechselständigen, gezähnten Blättern und gelben oder schwefelgelben Blüten in verlängerten, endständigen Trauben oder in rispigen Trauben oder einzeln in den Achseln grösserer und kleinerer -- wie Kelch und Blütenstiele -- rotgefärbter Deckblätter. Kronröhre lang, gerade oder am Grunde gebogen. Kronsaum 5spaltig, mehr oder weniger 2lippig. Kronabschnitte ausgebreitet oder zurückgebogen. -- Etwa 8 Arten im tropischen Amerika."

In reviewing the systematic position of this genus, Troncoso (1974) says: "Briquet en Die nat. Pflanzenfamilien, 1897 ubica Amasonia (sub Taligalea Aubl.) en la Tribu Monochilaeae de la Subfam. Verbenoideae por su fructo drupáceo con 4 pirenas uniseminadas, sin tener en cuenta su inflorescencia de tipo cimoso. Este criterio fue adoptado por Moldenke, 1959. Por el contrario, Schauer en el Prodromus, 1847 lo considera en la Subtribu Viticeae Sch., junto con Aegiphila, Tectona, Callicarpa, Clerodendrum, Vitex, etc., todos géneros de inflorescencia definida, cimosa. Esta misma posición adopta Junell, 1934 basándose en el estudio de la estrictura del

ovario que dice ser la misma que en el género Clerodendrum, Según mi opinión éste es el criterio más correcto a seguir, correspondiéndole por sus caracteres la siguiente ubicación en el sistema, Subfam. Viticoideae, Tribu Clerodendreae." In this connection it is rather interesting to note that Junell (1934), in coming to this apparently very important taxonomic conclusion examined ovarian material from seven species of the 570 taxa at present accepted in this genus.

The Grubb, Lloyd, Pennington, & Whitmore 140, distributed as Amasonia, is not verbenaceous.

AMASONIA ANGUSTIFOLIA Mart. & Schau.

Additional & emended bibliography: Bocq., Adansonia, ser. 1, 3: [Rev. Verbénac.] 219. 1863; Kuntze, Rev. Gen. Pl. 2: 509. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 103. 1893; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 419. 1906; M. Kunz, Anatom. Untersuch. Verb. 58. 1911; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 419. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 103. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 12. 1947; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 419. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 103. 1960; Moldenke, Phytologia 7: 339. 1961; El-Gazzar & Wats., New Phytol. 69: 483 & 485. 1970; Moldenke, Fifth Summ. 1: 146 & 389 (1971) and 2: 639 & 850. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58 & 61. 1973.

Recent collectors describe this plant as an herb, 30 cm. tall, the upper leaves and stems red, the corollas yellow, and found it growing in open grassy savannas, blooming in November. The type specimen, G. Gardner 3411, was photographed in the herbarium of the Botanisches Museum in Munich by Macbride as his type photograph number 20345, while an isotype in the Delessert Herbarium at the Conservatoire et Jardin Botaniques in Geneva is the basis of his type photograph number 28390.

Additional & emended citations: BRAZIL: Amazonas: Ducke 1903 (W—1908343); Prance, Pena, & Ramos 3370 (Ld, N, S). Goiás: G. Gardner 3411 [Macbride photos 20345 & 28390] (F—830281—photo of isotype, F—684152—photo of type, F—686619—photo of type, V—294783—photo of isotype, W—photo of isotype, W—photo of type). Pará: Spruce s.n. [In vicinibus Barra] (V—294705).

AMASONIA ARBOREA H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 205. 1817.

Additional synonymy: Amasonia arborea (Aubl.) Moldenke, Phytologia 4: 454, in syn. 1953. Amazonia arborea H.B.K. ex Moldenke, Phytologia 28: 453, in syn. 1974.

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 205 (1817) and ed. quart., 2: 253. 1818; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 103. 1893; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 103. 1946; Moldenke in Dawson, Los Angeles Co.

Mus. Contrib. Sci. 7: 11. 1957; Cuatrecasas, Revist. Acad. Colomb. Cienc. 10: 238. 1958; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 103. 1960; Moldenke, Phytologia 7: 339—340. 1961; Moldenke, Fifth Summ. 1: 122, 129, 131, 133, 146, & 389 (1971) and 2: 840. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 49 & 58—61. 1973; Moldenke, Phytologia 28: 453. 1974.

Recent collectors describe this plant as a perennial herb, sub-ligneous herb, or a shrub, simple-stemmed, 0.5—1 m. tall, the leaves blue-green, purple beneath, and the bracts red, deep-red, crimson, or scarlet. The corollas are described as having been "yellow" on Steyermark & Bunting 102910, "lemon-yellow" on Philcox & Freeman 4659, and "greenish-white" on Maguire, Maguire, & Wilson-Browne 46050a. It has been found growing in dry forests and in rain-forests, under subshrubs, or "occasional" on escarpments, at altitudes of 125—915 m., flowering in April and September.

It should be noted here that the Humboldt, Bonpland, & Kunth reference dates given above — correcting the one given by me in my original monograph (1939) — have been authenticated by the late Dr. John Hendley Barnhart (1902).

Material of Amasonia arborea has been misidentified and distributed in some herbaria as A. campestris (Aubl.) Moldenke. On the other hand, the Petitbon 62, distributed as A. arborea, is actually A. campestris, while Lourteig 1803, Philipson, Idrobo, & Fernandez 1488, and R. E. Schultes 5665 are A. lasiocaulos Mart. & Schau.

Additional & emended citations: VENEZUELA: Amazonas: Cardona 166 (W—1832666); Foldats 3718 (N, Ve—47282, W—2340452), 3864 (N, Ve—47308, W—2340461); Holt & Blake 471 (W—1517871), 483 (W—1517880), 729 (W—1519322); Holt & Gehrig 273 (W—1471983); Maguire, Cowan, & Wurdack 29458 (W—2058976); Maguire, Wurdack, & Bunting 36787 (W—2174991); Steyermark & Bunting 102910 (N); L. Williams 15175 (W—1878502). Bolívar: Bernardi 1488 (N); J. A. Steyermark 90207 (Ca); Wurdack & Monachino 41047 (N). GUYANA: Maguire, Maguire, & Wilson-Browne 46050a (W—2563597). BRAZIL: Amazonas: Holt & Blake 461 (W—1517862); J. A. Steyermark 104031 (N). Maranhão: G. Gardner 6084 (V—294784). Mato Grosso: Philcox & Freeman 4659 (N). Pará: Black, Egler, Cavalcante, & Silva 57-19542 (S); Killip & Smith 30322 (W—1463447).

AMASONIA CALYCINA Hook. f.

Additional synonymy: Taligalea punicea Hort. ex Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 23, in syn. 1901 [not T. punicea (Vahl) Poir., 1806].

Additional & emended bibliography: W. Robinson, Garden 27: 130—131, pl. 479. 1885; [Lebl], Illustr. Gartenzeit. Stuttgart 29: 193, pl. 26. 1885; Anon., Handelsbl. Tuinb. Sempervirens 14: 201 & 204. 1885; Anon., Journ. Hort. & Cottage Gard., ser. 3, 10: 435—

436, fig. 109. 1885; Meehan, Gard. Month. & Hort. 27: 300—301. 1885; Regel, Gartenfl. 35: 336—338, fig. 35. 1886; Hook. f. in Curtis, Bot. Mag. 113 [ser. 3, 43]: pl. 6915. 1887; Veitch, Cat. Pl. 1889: pl. 27. 1889; Beck von Mannagetta & Abel, Wien. Illustr. Gartenzeit. 15: 68—69, fig. 9. 1890; Kuntze, Rev. Gen. Pl. 2: 509. 1891; Möller, Deutsch. Gärt.-Zeit. 9: 141—142. 1894; Pucci, Bull. Soc. Tosc.ortic. 22: 232—233, pl. 10. 1897; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 23 (1901) and pr. 1, 419. 1906; Veitch, Hort. Veitch. 226. 1906; Stapf, Ind. Lond. 1: 164. 1929; Moldenke in Fedde, Repert. Spec. Nov. 46: 217—219. 1939; Moldenke, Lilloa 4: 306—307. 1939; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 23 & 419. 1941; Moldenke, Phytologia 2: 200. 1946; Moldenke in Cheesman, Fl. Trin. & Tob. 2 (6): 399. 1955; Moldenke, Fam. 2 Verbenac. 18. 1955; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 23 & 419. 1959; Encke, Pareys Blumengärtn., ed. 2, 444. 1960; Graf, Exotica 3: 1483 & 1531. 1963; Encke, Schönst. Kalt & Warmhauspf. 393. 1968; Foley, Flow. World Wilson 254. 1969; Moldenke, Fifth Summ. 1: 129, 354, & 389 (1971) and 2: 639 & 850. 1971; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 102. 1972; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58. 1973; Troncoso, Darwiniana 18: 401 & 408. 1974.

Illustrations: W. Robinson, Garden 27: 130, pl. 479 [in color]. 1885; [Lebl], Illustr. Gartenzeit. Stuttgart 29: pl. 26. 1885; Anon., Handelsbl. Tuinb. Sempervirens 14: 204. 1885; Anon., Journ. Hort. & Cottage Gard., ser. 3, 10: 436, fig. 109. 1885; Meehan, Gard. Month. & Hort. 27: 300—301. 1885; Regel, Gartenfl. 35: fig. 35. 1886; Hook. f. in Curtis, Bot. Mag. 113 [ser. 3, 43]: pl. 6915 [in color]. 1887; Veitch, Cat. Pl. 1889: pl. 27. 1889; Beck von Mannagetta & Abel, Wien. Illustr. Gartenzeit. 15: 69, fig. 9. 1890; Möller, Deutsch. Gärt.-Zeit. 9: 142. 1894; Pucci, Bull. Soc. Tosc.ortic. 22: pl. 10. 1897; Veitch, Hort. Veitch. 226. 1906; Encke, Pareys Blumengärtn., ed. 2, 444. 1960; Graf, Exotica 3: 1531. 1963.

In the Journal of Horticulture and Cottage Gardener (1885) the anonymous author says that "This is one of the distinct new plants which Messrs. Veitch & Sons (to whom we are indebted for the illustration) from time to time introduce to the public, and their description of it, as follows, appears to be very accurate — 'This is unquestionably one of the most beautiful of flowering shrubs that have been brought under the notice of horticulturists for many years. It was introduced by us from British Guiana through our collector, Mr. Davis Burke. It is of direct habit, with elegant spreading foliage; the leaves are of elliptic-lanceolate form, from 9 to 10 inches long. The inflorescence is very brilliant, being particularly striking from having a series of the richest vermilion-crimson Poinsettia-like spreading bracts arranged in pairs along the entire length of the racemes, which are a foot long; these bracts, the lowermost of which are 4 inches long, are very persistent, remaining in perfection fully two months. From the base of each bract are produced pendulous tubulous flowers, in twos and threes, of a creamy white colour, offering a striking contrast to the rich colouring of the other

parts of the inflorescence.' Two first-class certificates have been awarded to this plant — one last year by the Floral Committee of the Royal Horticultural Society, and the other last week at the Royal Botanic Society's Show at Regent's Park. Those honours sufficiently indicate the merit of the plant, which, by its long-continued brightness and apparent easiness of culture, is likely to find its way into most gardens where stove decorative plants are grown."

Encke (1960) has the following to say about this plant: "Brit. Guayana. Winter. 30—60 cm hoher, wenig odor gar nicht verzweigter Halbstrauch. Blätter länglich- oder elliptisch-lanzettlich, 15—30 cm lang, unregelmäßig gezähnt oder ausgebuchtet, mit Ausnahme der obersten Blätter glatt. Blüten hell schwefelgelb, 4—5 cm lang, hängend. Kelch etwa 2 1/2 cm lang, wie die Blütenstiele rot. Deckblätter groß, rot, mit purpurroten Haaren besetzt, nach dem Abfallen der Blüten bis 3 Monate lang an der Pflanze haftend. — 1881.....Prachtvolle, viele Monate lang blühende Warmhauspflanze für Schausammlungen und Liebhaber, auch für warme, geschlossene Wintergärten. Kultur im Warmhaus, hell, luftig und feucht, in lehmig-humoser oder in Einheitserde. Vermehrung durch Stecklinge im geschlossenen Warmbeet bei 25—30°." In his 1963 work he gives almost the same description but adds "Leider ist diese prachtvolle und dankbare Pflanze fast völlig aus den Sammlungen verschwunden. Man sollte sie wieder einführen. Sie gehört ins Warmhaus, wo sie genauso kultiviert wird wie Clerodendrum speciosissimum. Die Vermehrung erfolgt durch Stecklinge, die im geschlossenen Warmbeet bei 25—30° bald wurzeln. Leider aber bilden die Mutterpflanzen nur wenige Stecklinge, da sie sich so gut wie gar nicht verzweigen, so dass es oft schwierig ist, auf diese Weise zu einem gewissen Bestand zu kommen."

I am indebted to my very esteemed friend, Dr. J. L. van Soest, for the following summary of the "Sempervirens" article about this plant: "on p. 201 there is a short notice about Amasonia. It tells that it is imported from Brit. Guyana by David Burke for James Veitch & Sons. It is still expensive to buy, but it is to be hoped that the price will go down in future. It is mentioned a year ago (1884) by Gardeners Chronicle, the Garden and Journal of Horticulture. The figure is = 1/2 x. No author and no names of the editorial staff and no indication from where the illustration is taken."

Graf (1963) describes it as a "subshrub with scattered oblong, toothed leaves 6—12 in. long; flowered with colored bell-shaped calyx and long corolla tube, sulphur-yellow in nodding purple-hairy racemes, bracts red."

Lebl (1885) says "Diese unstreitig wertvolle Neuheit wurde von dem Sammler David Burke in British Guiana entdeckt, an der Firma Veitch in London gesendet und von da aus in den Handel gegeben. Die hervorragendsten englischen Fachzeitschriften sprechen sich sehr günstig über die Pflanze aus und die königl. Gartenbaugesellschaft in London belohnte sie mit einem Zeugnis I. Klasse. Amasonia punicea ist von aufrechtem, üppigem Wuchs und hat elegant aufge-

breitete, elliptisch-lanzettförmige Blätter von ca. 22--25 cm Länge. Der reizende Blütenstand besteht aus zwei Reihen reich hochroter Brakteen längs der ca. 30 cm langen Blütenähre und aus je 2--3 beisammenstehenden, abwärtshängenden Röhrenblumen von rahmweisser Farbe, die aus den Achseln der Brakteen oder Deckblättern zum Vorschein kommen. Die Deckblätter, von welchen die untersten 10 cm lang sind, sehen jenen von Poinsettia pulcherrima ähnlich und behalten ihre Schönheit volle 2 Monate. So lautet die Beschreibung dieser Pflanze, auf die wir die Aufmerksamkeit der Blumenfreunde lenken." The identical illustration is reproduced here as is found also in the Sempervirens article, on p. 142 of Möller's work, and in the Journal of Horticulture and Cottage Gardener article.

Möller (1894) follows Hooker (1887) in distinguishing between this cultivated plant and the A. punicea of Vahl [now known as A. campestris (Aubl.) Moldenke] under whose name it was originally distributed to gardeners. He says "Eine andere, durch die Herren Veitch ' Sohn aus Britisch-Guyana eingeführte und vielfach falschlich als A. punicea verbreitete Art ist A. calycina Hook. (Syn.: A. punicea Hort. non Vahl). Es ist dies ebenfalls eine prächtige Pflanze, die sich von der echten A. punicea Vahl hauptsächlich durch den breiteren Kelch und durch die verschieden geformten Brakteen deutlich unterscheidet; ebenso sind auch die Zipfel des Kelches grösser und lang zugespitzt. A. calycina ist ebenfalls ein Halbstrauch mit 15--30 cm langen, elliptisch oder länglich lanzettförmigen, zugespitzten Blättern, die grob oder unregelmässig gebuchtet oder gezähnt sind und zu einem 3--5 cm langen Blattstiel sich verengern. Sie sind gänzlich glatt, mit Ausnahme der am Blütenstande sitzenden Blätter, die oft hellrot gefleckt sind. Der 15 bis 25 cm lange Blütenstand ist etwas geneigt, reichlich belaubt und schwach mit roten bis purpurfarbenen Haaren besetzt. Die Brakteen oder Blütendeckblätter sind glatt, sichelförmig gebogen und zugespitzt, die oberen oft blütenlos oder nur mit unvollkommen ausgebildeten Blumen versehen.

"Die unmittelbar am Blütenstande befindlichen Blütendeckblätter sind öfters ganz hellrot, öfters auch wieder grün mit Hellrot gefleckt oder scharlachrot in Grün verlaufend.

"Die Blumen selbst sind kurzgestielt, hängend und 4 bis 5 cm lang. Der Kelch ist fast 2 1/2 cm lang, glatt und ebenfalls hellrot gefärbt. Die Korolla ist mattschwefelgelb, zylindrisch geformt, leicht gebogen und schwach behart, mit Ausnahme des kurzen, verengten Teiles der Röhre im Grunde des Kelches.

"Es sind jener zu Schnitzzwecken verwendbaren Pflanzen, die sich gleich den Amsonien, Bougainvilleen und Poinsettien durch lebhaft gefärbte Blütenhüllblätter auszeichnen, nicht sehr viele. Umso mehr ist es geraten, ihre Kultur zur Ausbildung zu bringen, weil durch ihren Blütenstand der Blumenbindekunst ein ganz eigenartig schön wirkender Werkstoff zugänglich gemacht wird.

"Wir haben zu unserem Bedauern sowohl von der Amasonia punicea wie auch von der A. calycina in Deutschland eine Vorlage für die bildliche Veranschaulichung nicht aufzutreiben vermocht und geben

deshalb die Darstellung der erstgenannten nach einer in E. Pynaert's 'Revue de l'Horticulture Belge et Etrangère' veröffentlichten Farbentafel und der letzteren nach einer englischen Vorlage wieder, deren eigentlichen Ursprung wir nicht zu ermitteln in der Lage waren.

"Die übrigen etwa 8 bis 10 noch bekannten, zu dieser Gattung gehörenden Spezies sind bisjetzt noch nicht eingeführt; da sie auch keine besonders hervorragenden blumistischen Eigenschaften aufweisen, so dürften sie wol nur für botanische Gärten Wert haben." [It should be noted that the Pynaert illustration which he reproduces seems to represent A. spruceana Moldenke, rather than the true A. calycina.]

AMASONIA CAMPESTRIS (Aubl.) Moldenke

Additional & emended synonymy: Amasonia erecta L. f., Suppl. Pl., pr. 1, 294. 1781. Tachigalea campestris Aubl. ex Griseb., Fl. Brit. W. Ind. 501, sphalm. 1861. Amasonia erecta L. ex Bocq., Adansonia, ser. 1, 3: 219. 1862. Amasonia campestris (Aubl.) Moldenke, Résumé Suppl. 3: 30, in syn. 1962. Amazonia campestris (Aubl.) Moldenke, Résumé Suppl. 15: 16, in syn. 1967. Amasonia campestris (Aubl.) Moldenke, Phytologia 25: 235, in syn. 1973.

Additional & emended bibliography: Aubl., Hist. Pl. Guian. 2: 625, pl. 252. 1775; L. f., Suppl. Pl., pr. 1, 294. 1781; J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 922 & 965 (1789) and ed. 13, pr. 2, 2: 922 & 965. 1796; Raeusch., Nom. Bot., ed. 3, 182. 1797; Vahl, Eclog. Amer. 2: 51. 1798; Poir. in Lam., Encycl. Méth. Bot. 7: 556. 1806; H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 205 (1817) and ed. quart., 2: 253. 1818; Pers., Sp. Pl. 3: 355. 1819; Steud., Nom. Bot., ed. 2, 1: 74. 1840; Voigt, Hort. Suburb. Calc. 473. 1845; Schau., Linnaea 20: 484. 1847; Schau. in A. DC., Prodr. 11: 677. 1847; Schau. in Mart., Fl. Bras. 9: 291-293. 1851; Griseb., Fl. Brit. W. Ind., pr. 1, 501. 1861; Bocq., Adansonia, ser. 1, 2: 76, 87, 110, 156, & 163 (1862) and 3: 219, pl. 5, fig. 11-18. 1863; Bocq., Rev. Verbénac. 76, 87, 110, 156, 163, & 219, pl. 5, fig. 11-18. 1863; Anon., Journ. Hort. & Cottage Gard., ser. 3, 10: 435-436, fig. 109. 1885; [Lebl], Illustr. Gartenzeit. Stuttg. 29: 193, pl. 26. 1885; Kuntze, Rev. Gen. Pl. 2: 509. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 103. 1893; Möller, Deutsch. Gärtn.-Zeit. 9: 141-142. 1894; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1032. 1895; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 157. 1895; Hook. f. in Curtis, Bot. Mag. 121: pl. 7445. 1895; Pucci, Boll. Soc. Tosc.ortic. 22: 232-233, pl. 10. 1897; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; T. Peckolt, Bericht. Deutsch. Pharm. Gesell. 14: 480. 1904; M. Kunz, Anatom. Untersuch. Verb. 58-59. 1911; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 419. 1906; Pulle, Enum. Pl. Surinam. 402. 1906; Gleason, Bull. Torrey Bot. Club 58: 463. 1931; Moldenke, Torreya 34: 8. 1931; Junell, Symb. Bot. Upsal. 4: 107, pl. 7, fig. 2. 1934; L. f., Suppl. Pl., pr. 2, 294. 1936; A. W. Hill, Ind. Kew. Suppl. 9: 14. 1938; Moldenke in Fedde, Repert. Spec. Nov. 46: 210-216. 1939; Moldenke, Lilloa 4: 305-306. 1939; Mol-

denke, Prelim. Alph. List Invalid Names 4, 5, & 42. 1940; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 419. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 103 (1946) and pr. 2, 2: 1032. 1946; Moldenke, Phytologia 2: 200. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 12 & 227. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 2. 1947; Moldenke, Phytologia 2: 502. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 57, 62, 65, 67, 68, 75, 156, & 176. 1949; F. C. Hoehne, Ind. Bibl. & Num. Pl. Col. Com. Rondon 346. 1951; Moldenke in Cheesman, Fl. Trin. & Tob. 2 (6): 398—399. 1955; Moldenke, Fan. 2 Verbenac. 17—18. 1955; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 419. 1959; Braga, Pl. Nordest., ed. 2, 88 & 100. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 103 (1960) and pr. 3, 2: 1032. 1960; Moldenke, Phytologia 7: 340—341. 1961; Griseb., Fl. Brit. W. Ind., pr. 2, 501. 1963; Van Donselaar, Wentia 14: 70. 1965; Moldenke, Résumé Suppl. 12: 3. 1965; Huinink, Wentia 17: 136—137. 1966; J. A. Steyermark, Act. Bot. Venez. 3: 156. 1968; Van Donselaar, Meded. Bot. Mus. Rijks-univ. 306: 404. 1968; Foley, Flow. World Wilson 254. 1969; Lasser, Act. Bot. Venez. 4: 48. 1969; Teunissen & Wildschut, Verh. Konink. Nederl. Akad. Wet. Natuurk. 59 (2): 28 & table 2. 1970; Moldenke, Fifth Summ. 1: 111, 122, 129, 131, 133, 147, 354, & 389 (1971) and 2: 639 & 850. 1971; Teunissen & Wildschut, Meded. Bot. Mus. Utr. 341: 28 & table 2. 1971; Stafleu, Internat. Code Bot. Nom. 354. 1972; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58—61. 1973; Moldenke, Phytologia 25: 235 (1973) and 28: 463. 1974; Troncoso, Darwiniana 18: 400, 401, & 408, fig. 39. 1974.

Illustrations: Aubl., Hist. Pl. Guian. 4: pl. 262. 1775; Lam., Tabl. Encycl. Méth. Bot. 3: pl. 543. 1797; Vahl, Eclog. Amer. 2: pl. 20. 1798; Bocq., Adansonia, ser. 1, 2: pl. 5, fig. 11—18. 1863; Bocq., Rev. Verbénac. pl. 5. 1863; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 157. 1895; Hook. in Curtis, Bot. Mag. 121: pl. 7445 [in color]. 1895; Troncoso, Darwiniana 18: 400, fig. 39. 1974.

Recent collectors describe this plant as an erect perennial herb, a half-shrub, or a subshrub, 0.3—2 m. tall, usually with a single erect stem and no branches, or occasionally with red branches, the leaves scattered along the stem, the midrib and veins purple beneath, the inflorescences 30—50 cm. tall, the hairs dark-violet, the bracts red, bright-red, dark-red, or cardinal-red to vermilion or even "brown-purple", or else "greenish outside and red inside", the calyx red or dark-red, the corollas yellow or pale-yellow to cream-color, the filaments white, the anthers brown or mustard-green, and the fruit green or light-green to yellowish-green when immature, turning black at maturity. The Sastres say "nervures face inférieure des feuilles rougeâtres, tiges rouges; bractées rouges, nervures face inférieure vertes saillantes; pédoncules rouges, sépales vert rougeâtres, pétales jaunes grande racine pivotante blanche; fruits immatures verts."

The corollas are said to have been "yellow" on Cavalcante 2409, D. H. Davis 43, and J. A. Steyermark 86561, "pinkish-white" on W.

R. Anderson 7732, and "cream" on Irwin, Harley, & Smith 30808; on Davis 903 the label states "bracts and flowers red", but this is most certainly due to an error in observation on the part of the collector.

The Eitens describe the plant as a "low subshrub, the flowers 22 mm. long from base of the calyx plus 8 mm. more of projecting style, face of corolla (looking into its mouth) 11 x 12 mm., outside of corolla light-green tinged with red, upper surface of limb light-green with reticulate red lines, filaments whitish, anthers mustard-green, ripe berry spherical, 7 mm. in diameter, black." They encountered it growing in a "chapada" of tall trees in deciduous to evergreen xeromorphic tree woodland (cerradão) on the tops and sides of sandstone plateaus and some low flat land, at 300 m. altitude, flowering and fruiting in April. It should be pointed out that the fruits are actually drupes, not "berries".

The plant has been found growing in forest shade, in open woods, on savannas, in thickets in savanna meadows near streams, in hammocks in the middle of savannas, on white or gray sand of dry savannas of Byrsonima verbascifolia, in sandy cerrado or on cerrado slopes, in "cerrado xeromorphic arboreal woodlands", and in cutover semi-deciduous forests on slopes. Goodland found it in the partial shade of shrubs on dry lateritic ridged savanna grassland with scattered trees, the dominant plants being Curatella, Byrsonima, Trachypogon, and Fimbristylis. Anderson found it in cerrado in an area of "mesophytic woods by stream, open marshy place near stream, and cerrado on hillsides above". Lens encountered it on loamy soil of savannas dominated by Trachypogon and Curatella americana. Irwin and his associates report it from cerrado in regions of gallery forest and adjacent cerrado in Goiás and assert that it is "infrequent in cerrado" in Bahia. The Eitens found it "on natural lithosol campo, in the stony soil on top of bedrock sandstone pavement".

Amasonia campestris has been found at altitudes of 300 to 1000 meters, flowering (in addition to the months previously reported by me) in August and fruiting in February and March. Huinink (1966) states that it is found in the Polycarpaeo-Trachypogonetum cyperetosum and Polycarpaeo-Trachypogonetum curatelletosum associations. The vernacular names, "cacho vermelho", "cola de gallo", and "mendóca", are recorded for it, and it is said to be used by natives in the treatment of stomach inflammations. Peckolt (1904) says of it "Ein Strauch der Staaten vom Äquator bis zum 9.° südl. Br.....Das Dekokt der Blätter ist ein Volksmittel beim Gonorrhöe."

The type specimen of Taligalea campestris, Aublet s.n., in the herbarium of the British Museum (Natural History) in London, was photographed there by F. G. Meyer as his type photograph number 4070. The type specimen of A. velutina, Blanchet 3156, was photographed by Macbride in the DeCandolle Herbarium at the Conservatoire et Jardin Botaniques in Geneva and is his type photograph number 7887.

It should also be noted here that the Humboldt, Bonpland, and

Kunth reference dates given in the emended bibliography above have been authenticated by Barnhart (1902). It is interesting to note, also, that Raeuschel (1797) gives the native habitat of A. erecta as Surinam and of A. taligalea as "Guiana".

Foley (1969) describes what he calls Amasonia punicea as a "pretty flowering plant, native of British Guiana. Each shoot terminates in a raceme of many white tubular flowers each 1" long and subtended by a bright red bract which persists for a couple of months after the flowers have fallen." Obviously, he is speaking of A. calycina Hook. f. (the "A. punicea Hort.", not A. punicea Vahl). Similarly, the description and illustration given by Pucci (1897) refer to A. calycina — they are merely copies of those in Illustr. Gartenzeit. (1890), Möller's Deutsch. Gärtn.-Zeit. (1894), etc.

Steiermark (1968) cites J. A. Steiermark 86561 & 88488. Material of A. campestris has been distributed in some herbaria as "Amazonia sp." On the other hand, the Maguire, Maguire, & Wilson-Browne 46050a, distributed as Amasonia campestris, is actually A. arborea H.B.K., while Murça Pires & Cavalcante 51993 is A. hirta Benth. and Prance & Silva 58720 is A. lasiocaulos Mart. & Schau. Maguire & Stahel 22782 is a mixture with Aegiphila laevis (Aubl.) Gmel. — its label is inscribed "Frequent; liana", a statement which doubtless applies to the Aegiphila portion of the number.

Additional & emended citations: TRINIDAD & TOBAGO: Trinidad: Britton, Coker, & Rowland 112 (W-1046816); W. E. Broadway 2138 (F-248873), 6950 (F-972241); Eggers 1003 (Ca-453283, V-98099), 1389 (W-1148085); D. G. Fairchild s.n. [Feb. 15, 1932] (E-1082993, W-1626013); Ryan s.n. [Macbride photos 22773] (F-687347-photo); Warming 207 (W-1234850); Webster, Ellis, & Miller 9653 (S). VENEZUELA: Anzoategui: H. Pittier 15089 (W-1876257). Bolívar: Maguire, Wurdack, & Bunting 35955 (W-2174984); Pannier 822 (Ve-51181); J. A. Steiermark 86561 (W-2486289), 88488 (N); Ll. Williams 13420 (W-1800636). Guárico: Aristeguieta 2317 (Ve-43038), 4206 (Ve-46120), 5669 (N); Blydenstein 273 (Ve-49237); Tamayo 4115 (Ve-38421, W-2220993). Monagas: Tamayo 3488 (Ve-51403). Sucre: Lasser & Vareschi 3883 (Ve-38121). GUYANA: Cowan & Soderstrom 1759 (W-2370483), 1771 (W-2370484, W-2370485); D. H. Davis 43 (N), 903 (N); Goodland 209 (Ld, W-2546183); A. S. Hitchcock 16956 (W-1056155, W-1056156); Irwin 301 (W-2172640), 593 (Au-165480), 1039 (Au-165661); Jenman 5567 (W-57332, W-1323169); Rob. Schomburgk 228 (V-294781, V-294785, W-702593); A. C. Smith 2441 (F-1023682). SURINAM: Archer 2772 (W-1592347); D. G. Fairchild s.n. [March 3, 1932] (W-1626066); Hostmann 893 (V-111721, V-294780), 1409 (V-123450); Lems 640223 (N); Maguire & Stahel 22782, in part (W-1902626); Wullschlägel 403 (V-132182, V-161105), 1982 (V-132181).

FRENCH GUIANA: Aublet s.n. [F. G. Mey. photo 4070] (Gz--photo of type, N--photo of type); W. E. Broadway 176 (G, W--1068512), 747 (W--1068901); Mélinon 82 (F--539771, W--1123381); Petitbon 62 (P); Poiteau s.n. [Cayenne] (V--125539); Sagot 424 (V--122956), 1319 (V--122957), s.n. (Pd); Sastre & Sastre 21 (N, P), 44 (N, P), 219 (P, P); Schnell 11068 (P), 11089 (N). BRAZIL: Amapá: Black & Lobato 50-7434 (Ca--91482); Irwin & Westra 47249 (N); Maguire & Maguire 47025 (W--2563594); Murça Pires, Rodrigues, & Irvine 51102 (W--2563595), 51120 (W--2563596). Bahia: Blanchet 3156 [Macbride photos 7887] (F--645561--photo, F--686411, F--869622, F--923105--photo, W--photo); Irwin, Grear, Souza, & Reis dos Santos 44681 (Ld); Irwin, Harley, & Smith 30808 (Ld, N). Ceará: Freire Allemão 1168 (W--1199360); G. Gardner 1987 (V--294782); Luetzelburg 26095 (F--912251), 26162 (F--836465). Goiás: W. R. Anderson 7732 (Ub); Irwin, Grear, Souza, & Reis dos Santos 44494 (N); Irwin, Maxwell, & Wasshausen 21253 (N), 21390 (Ac). Maranhão: Eiten & Eiten 3586 (N, W--2445203), 3914 (W--2445200), 4158 (N, N, W--2445197, W--2445212), 4353 (W--2445215), 10374 (W--2687975), 10505 (W--2701739). Minas Gerais: Belém & Mendes 451 (Ac); Irwin, Reis dos Santos, Souza, & Fonseca 23879 (Ac, N). Pará: Archer 7606 (W--2439056); Cavalcante 2409 (Ld, N); Drouet 2125 (F--949436, Mi, W--1594742); Guedes 100 (Ba); Mexia 5924a, in part (E--1068925); Monteiro da Costa 263 (F--693999); Murça Pires & Silva 10524 (Ld). Piauí: G. Gardner 2276, in part (V--294706). Trauíra Island: Frões 1862 (E--1041569, F--707013, W--1660174). LOCALITY OF COLLECTION UNDETERMINED: Herb. Barbier s.n. (P).

AMASONIA CAMPESTRIS var. SURINAMENSIS Moldenke

Additional & emended bibliography: Moldenke in Fedde, Repert. Spec. Nov. 46: 216. 1939; Moldenke, Known Geogr. Distrib. Verbenac., ed. 1, 33 & 36. 1942; Moldenke, Phytologia 2: 200. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 67 & 176. 1949; Moldenke, Résumé 76 & 442. 1959; Moldenke, Fifth Summ. 1: 131 (1971) and 2: 850. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58 & 61. 1973.

López-Palacios (1973) feel that this plant may yet be found in Bolívar or Amazonas, Venezuela.

AMASONIA HIRTA Benth.

Additional synonymy: Gesnera pilosa Glaz. ex Moldenke, Phytologia 23: 431, in syn. 1972. Gesneria pilosa Glaz. ex Moldenke, Phytologia 23: 431, in syn. 1972 [not G. pilosa Hort., 1347].

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 103. 1893; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 419. 1906; M. Kunz, Anatom. Untersuch. Verb. 58. 1911; Moldenke in Fedde, Repert. Spec. Nov. 46: 203--205. 1939; Durand

& Jacks., Ind. Kew. Suppl. 1, pr. 2, 419. 1941; Moldenke, Lilloa 6: 313. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 103. 1946; Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 11. 1957; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 419. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 103. 1960; Moldenke, Phytologia 7: 341. 1961; Angely, Fl. Anal. & Fitogeogr. S. Paulo, ed. 1, 4: 831 & 1, map 1377. 1971; Moldenke, Fifth Summ. 1: 147 & 185 (1971) and 2: 639 & 850. 1971; Moldenke, Phytologia 23: 431. 1972; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58. 1973; Troncoso, Darwiniana 18: 399, 401, & 408, fig. 38. 1974.

Illustrations: Troncoso, Darwiniana 18: 399, fig. 38. 1974.

Recent collectors describe this plant as a tall erect herb, subshrub, or small shrub, 0.25—1 m. tall, the stems simple, in clumps, red or reddish, the leaves softly hairy, dark-green above, paler beneath, the inflorescence apex nodding, the bracts red, reddish, or red-orange to orange-red, orange, or scarlet, sometimes described as "yellow-green to red or rusty-red", "yellow to red-orange", "yellow-green and red", or "red inside and greenish outside". The calyx, similarly, is described as red, reddish, bright-red, orange-red, or scarlet, yellow-green and red, yellow-green to rusty-red, or sometimes orange-yellow. The immature fruits are described as green or yellow-green. Irwin and his associates speak of "heads violet-brown" and "heads cream", but I am not certain to what they are here referring since there are no capitate inflorescences in this genus.

The corollas are said to have been "white" on R. P. Belém 477, "cream" on Irwin, Anderson, Stieber, & Lee 34164, 34509, & 34750, Irwin, Grear, Souza, & Reis dos Santos 12305, Irwin, Harley, & Smith 32793, Irwin, Maxwell, & Wasshausen 11840 & 18824, Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25008 & 26161, and Irwin, Reis dos Santos, Souza, & Fonsêca 23990 & 24967, "yellow" on Murça Pires & Cavalcante 51993, "pinkish-yellow" on Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25748, "pinkish-cream" on Philcox & Ferreira 3886, and "cream, pinkish in throat" on Irwin, Souza, & Reis dos Santos 11389. On Philcox & Ferreira 4374 they are described as "corolla-tube fawnish-cream". Some collectors have described the calyx as "reddish-green".

The plant has been found growing among grasses on campo slopes and among newly invading vegetation, in cerrado, on rocky slopes, in grassy cerrado on very dry soil, on dry campos, in stony pastured campos on gentle slopes or in pastured cerrado, in wet places on campo on rocky slopes, in cerrado in areas of brejo (wet sedge meadow), cerrado, and gallery woods, cerrado and adjacent slope forest. Irwin and his associates describe it as common on campos; others refer to it as frequent at gallery margins and on upland savannas and have found it on campos in regions of cerrado on steep slopes surrounded by campo. It has been collected at altitudes of 700—1250 meters, flowering from January to March, in July, and in October, fruiting from January to March and in July.

Irwin & Soderstrom aver that it is "infrequent" in Goiás.

Kuntze (1891) reduces A. lasiocaulos Mart. & Schau. to the synonymy of A. hirta, a disposition with which I cannot agree.

Oliveira describes A. hirta as an "arbustinho, cálice vermelho, pétalas brancas tubulosas, estames e anteras brancas" and "flôr evermelhada" and found it in a high forest on sandy terra-firma (non-inundated land). The Eitens call it a "tall herb, petals pale light-yellow, filaments pale light-yellow, anthers yellow, calyx in flower pale-peach tinged with green, in fruit reddish-peach". A vernacular name recorded for the plant is "mendoca".

A specimen of Martius 583 in the herbarium of the Botanisches Museum in Munich was photographed there by Macbride as his type photograph number 20346 and another of the same collection at the Conservatoire et Jardin Botaniques in Geneva as his type photograph number 7886, but this collection is not one on which the species was based. The type of Gesneria pilosa is Glaziou 21835 from Goiás, Brazil, deposited in the herbarium of the Muséum National d'Histoire Naturelle in Paris.

Some material of A. hirta has been misidentified and distributed in some herbaria as A. campestris (Aubl.) Moldenke.

Additional & emended citations: BRAZIL: Amapá: Murça Pires & Cavalcante 51993 (Ld, N, S). Distrito Federal: R. P. Belém 477 (Ac, Ld, N); Irwin, Souza, & Reis dos Santos 11389 (Ac); Murça Pires, Silva, & Souza 9458 (B). Goiás: Glaziou 21835 (P); Harley, Barroso, & al. 11431 (N); Irwin, Anderson, Stieber, & Lee 34161 (Ub), 34164 (N), 34509 (Ld, N, W—2709617), 34750 (Ac, N, W—2709859); Irwin, Grear, Souza, & Reis dos Santos 12305 (Ac), 14296 (Ld); Irwin, Harley, & Smith 31820 (Ac), 32793 (Ld, N, W—2709810); Irwin, Maxwell, & Wasshausen 18824 (Ac), 18840 (Ld); Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25008 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 23990 (Ac, N), 24967 (Ld, N); Irwin & Soderstrom 7227 (N). Mato Grosso: Malme 1318 (W—1483471); Martius 583 [Macbride photos 7886 & 20346] (E—134932, F—645724—photo, F—684153—photo, N—photo, W—photo); Philcox & Ferreira 3886 (N), 4374 (N); Retter, Bertoldo, Castro, Santos, & Souza R.915 (N). Minas Gerais: Eiten & Eiten 3566 (N, W—2445209); Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25748 (Ac, N), 26161 (Ac); Macedo 195 (W—2197254); Tamberlik s.n. (F—876324). Pará: E. Oliveira 4448 (N), 4469 (N); Spruce s.n. [In vicinibus Barra] (F—686366), s.n. [In vicinibus Santarem, 1850] (V—294708). São Paulo: L. Riedel 37x (W—1573644), s.n. [Villa Franca, June 1834] (W—1573647).

AMASONIA LASIOCAULOS Mart. & Schau.

Additional synonymy: Amasonia lasiocaulis Mart. & Schau. ex Kuntze, Rev. Gen. Pl. 2: 509, in syn. 1891.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks.,

Ind. Kew., pr. 1, 1: 103. 1893; M. Kunz, Anatom. Untersuch. Verb. 58--59. 1911; Hill & Salisb., Ind. Kew. Suppl. 10: 227. 1947; Cuatrecasas, Revist. Acad. Colomb. Cienc. 10: 238. 1958; J. F. Macbr., Field Mus. Publ. Bot. 13 (5): 689--690. 1960; Moldenke, Phytologia 7: 341. 1961; Moldenke, Fifth Summ. 1: 115, 139, 147, & 389 (1971) and 2: 639 & 950. 1971; Moldenke, Phytologia 23: 418. 1972; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58 & 61. 1973; Moldenke, Phytologia 28: 437, 438, & 453. 1974.

Recent collectors describe this plant as an herb, 20--50 cm. tall, or a shrub, 1--1.5 m. tall, the stem leafless below, the upper leaves whorled, purple beneath or bright-red or red when young and maroon when adult, the inflorescence rosy-coral or scarlet, the bracts red, cardinal-red, or vermilion to scarlet, or bright-red when young and maroon when adult, the calyx red or scarlet, the corollas lemon-yellow or cream, and the immature fruit green, becoming deep-red when mature. The corollas are said to have been "yellow" on Prance & Silva 58720, "light-green" on Prance, Maas, Kubitzki, Steward, Ramos, Pinheiro, & Lima 11782, and "red" on Silva & Souza 2278.

The plant has been found growing in clay or limestone soil in dense humid or shaded forests or in moist forests on white sand, at altitudes of 400--600 meters, flowering from July to September (in addition to months previously reported by me), and fruiting in February, August, and November. Cowan & Soderstrom report it "locally occasional" in Guyana, while Miss Lourteig refers to it as "rare" in Amapá, Brazil. A vernacular name reported for it is "mendoca", the same as is used for other species of the genus. López-Palacios (1973) thinks that it may yet be found in Amazonas or Bolívar, Venezuela. Macbride (1960) cites only Allard 20522 from San Martin, Peru.

The Eitens call A. lasiocaulos a subshrub, with the bracts red, the corollas light-green, the filaments and style light-green, and the anthers light-brown. They encountered it growing in virgin upland semideciduous mesophytic forest 11 m. tall, the tree canopy over 60 percent, with a few shrubs, the ground layer of dense marantaceous herbs and low Olyra-like grass [this type of forest is locally called "carrasco"], flowering in January.

Material has been misidentified and distributed in some herbaria as A. arborea H.B.K., A. campestris (Aubl.) Moldenke, or "Amazonia arborea H.B.K."

Additional & emended citations: COLOMBIA: Méta: Philipson, Id-robo, & Fernandez 1488 (W--2026146). Vaupés: Cuatrecasas 7017 (W--1774224); R. E. Schultes 5665 (W--1875040). GUYANA: Cowan & Soderstrom 1712 (Fg, W--2678022). BRAZIL: Acre: Prance, Maas, Kubitzki, Steward, Ramos, Pinheiro, & Lima 11782 (Id, N). Amapá: Egler & Irvine 46426 (N); Lourteig 1803 (W--2595102); Murça Pires, Rodrigues, & Irvine 50308 (N), 50761 (N). Amazonas: Prance, Pena, Ramos, & Monteiro 2203 (N); Ule 8961 (W--1615262). Maranhão: Eiten & Eiten 10275 (W--2689051). Pará: Dahlgren & Sella 534 (F--

602561), 637 (F—602980); Kauffmann 5 (F—603452); Mexia 5924a, in part (F—670942, F—670943); Prance & Silva 58720 (N, W—2514755); Silva & Souza 2278 (N). MOUNTED ILLUSTRATIONS: Schau. in Mart., Fl. Bras. 9: pl. 48. 1851 (N, Z).

AMASONIA OBOVATA Gleason

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 14. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 416. 1939; Moldenke, Phytologia 7: 341. 1961; Moldenke, Fifth Summ. 1: 122 (1971) and 2: 850. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 58, 60, & 61. 1973.

López-Palacios asserts (1973) that "Sin embargo, en algunos ejemplares de A. campestris de los Llanos venezolanos se encuentran también brácteas obovadas."

AMASONIA SPRUCEANA Moldenke

Additional synonymy: Amasonia sprucena [Moldenke] ex López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 59, sphalm. 1973.

Additional bibliography: Seghers, Rev. Hort. Belg. 20: 13—15. 1894; Möller, Deutsch. Gärt.-Zeit. 9: 141—142. 1894; A. W. Hill, Ind. Kew. Suppl. 9: 14. 1938; Cuatrecasas, Revist. Acad. Colomb. Cienc. 10: 238. 1958; Moldenke, Phytologia 7: 342. 1961; Moldenke, Fifth Summ. 1: 115, 122, 147, & 354 (1971) and 2: 850. 1971; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 49 & 58—61. 1973; Moldenke, Phytologia 28: 453. 1974; Troncoso, Darwiniana 18: 401 & 408. 1974.

Illustrations: Seghers, Rev. Hort. Belg. 20: 13 (in color). 1894; Möller, Deutsch. Gärt.-Zeit. 9: 141. 1894.

Recent collectors have found this plant growing in forests on terra-firma (non-inundated land), flowering and fruiting in October, and describe the plant as a shrub, 1 m. tall, with white flowers and red fruit. López-Palacios (1973) wonders if this taxon may not be merely an anomalous form of A. arborea H.B.K.

An isotype of A. spruceana, Spruce 3288, in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva was photographed there by Macbride as his type photograph number 28391.

Additional & emended citations: COLOMBIA: Vaupés: Cuatrecasas 6853 (W—1774674). VENEZUELA: Amazonas: Spruce 3288 [Macbride photos 28391] (F—686512—istype, F—830282—photo of isotype, V—294707—istype, W—photo of isotype). BRAZIL: Amazonas: Prance, Maas, Woolcott, Monteiro, & Ramos 15818 (Ld, N).