

NEW GESNERIACEAE FROM PANAMA¹

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The many botanical collections that have been made recently in Panama, chiefly under the auspices of the Missouri Botanical Garden, have added greatly to our knowledge of the family Gesneriaceae. The plants of this family are exclusively tropical and often epiphytic. Until the last few years fewer than 20 species have been known from Panama. This number has been much more than doubled. There are known now over 30 species of *Columnnea* alone, more than are recorded from Costa Rica, formerly considered one of the richest regions for Gesneriaceae. Almost all the novelties belong to the subfamily Columneoideae, which reaches its greatest development in Colombia.

The greatest number of new species have been discovered by Mr. Paul H. Allen, an exceedingly discerning collector, with an unusual faculty for picking out interesting and rare plants. Most of his recent collections have come from a locality cited as "hills north of El Valle de Anton, Province of Coclé, altitude 1000 meters." This locality is described by Mr. Allen in a letter dated Feb. 2, 1941, as follows:

"About a week ago I had the opportunity of spending four days in El Valle, in Coclé Province, and I am astonished at the tremendous wealth of the place. This time I was able to get up into the high plateau regions to the north, and never in all my collecting experience have I seen such a fantastic region or such fascinating plants. After leaving the crater proper, there is a line of buffer hills to the north, rising in three rounded domes topped with an elfin forest and over which a steady cascade of fog and misty rain pours. To the north of these hills is a maze of valleys, with a most curious set of plateaus, some not over an acre or two and others probably forty or more acres. The tops are almost perfectly flat, with deep rich black soil, supporting a growth of giant trees which literally drip with epiphytes of all descriptions. There are almost always practically sheer drops on nearly all sides of these places, sometimes going down for several hundred feet. This last time there I came to such a precipice and could look down six or seven hundred feet below to where the tumbled hills and interlocking valleys ran off to the north. Occasionally the mists would clear for a bit, and far off the Atlantic Ocean could be seen. . . . I think I can guarantee that you will get some interesting plants."

Mr. Allen was quite right. On this trip, as on several later ones, he found many new and interesting plants, especially in the Ges-

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neriaceae. The affinity of the flora of this region is decidedly with the mountain flora of Costa Rica.

In addition to the plants collected by Mr. Allen, I have had the advantage of studying collections made by Dr. Robert E. Woodson, Jr. and Mr. R. W. Schery. These include several novelties, here described. A small, but very interesting collection, made by Mr. and Mrs. Terry in the mountains of the Province of Darien, was kindly made available by the Field Museum of Natural History.

The present paper lists only new species and new records. A complete account of the Gesneriaceae of Panama will be published at a later date.

ALLOPLECTUS CORIACEUS (Oerst.) Hanst. *Linnaea* **34**: 363. 1865–66.—BOCAS DEL TORO: Cricamola, region of Almirante, Jan.–March, 1928, *Cooper 207*. Distributed as *Drymonia* sp. Previously known from Costa Rica.

ALLOPLECTUS ICHTHYODERMA var. *PALLIDUS* Morton, *Field Mus. Publ. Bot.* **18**: 1145. 1938.—CHIRIQUÍ: Casita Alta to Cerro Copete, alt. 2300–3300 m., July 10, 1940, *Woodson & Schery 359*. Previously known from Costa Rica.

ALLOPLECTUS panamensis Morton, sp. nov. Herba lignosa, 1 m. alta; caules non ramosi, crassi, usque ad 12 mm. diam., apice ca. 5 mm. diam., tetragoni, lateraliter compressi, dense flavo-subhirsuti; folia per paria aequalia, longe petiolata, petiolo 5–11 cm. longo, hirsuto; lamina foliorum ovata 21–23 cm. longa, 12.5–15 cm. lata, breviter acuminata, basi rotundata, aequalis, chartacea, serrulata, supra viridis, pilosa, subtus pallidior, non rubro-maculata, ubique dense pilosa, venis lateralibus ca. 8-jugis, supra subobscuris; inflorescentia axillaris, densiflora, bracteis rubris, ovatis, ca. 1.5 cm. longis, acuminatis, denticulatis, pilosis, pedicellis 2–3 cm. longis, dense hirsutis; calyx ruber, lobis subaequalibus, oblongis, ca. 2.5 cm. longis, 1 cm. latis, acutis, herbaceis, glanduloso-serratis (dentibus ca. 11 utroque latere), externe dense flavo-hirsutis, intus strigosis; corolla coccinea, 4.5–5 cm. longa, in calyce obliqua, basi calcarata (4 mm.), tubo ca. 4 mm. diam. supra basim, sursum gradatim ampliato, non ventricosus, externe dense hirsuto, intus glabro, fauce 1 cm. lato, obliquo, limbo ca. 1.5 cm. lato, obliquo, lobis recurvis, subaequalibus, suborbiculatis, ca. 4 mm. longis, subintegris, intus glabris; filamenta basi vix in tubum connata, im corolla alte adnata, glabra; antherae inclusae, cohaerentes, transverse oblongae,

ca. 2 mm. longae, 3 mm. latae; ovarium hirsutum; stylus glaber; stigma bilobum; disci glandula postica solum evoluta, magna, crassa, glabra, emarginata.—COCLÉ: hills north of El Valle de Anton, alt. 1000 m., July 14, 1940, *Paul H. Allen 2189* (U. S. Nat. Herb., no. 1,791,876-7, TYPE); same locality June 23, 1940, *Allen 2166*.

On Cerro Campana in the Province of Panamá a related species has been collected (*Allen 2412*), which at first I considered the same. However, I am sure now that it is different, but the material lacks corollas and is insufficient for a description.

Alloplectus panamensis belongs to the section Glossoloma, but is not closely related to the other North American species, *A. tetragonus* and *A. simulatus*, which have appressed pubescence on stems and leaves. They have, also, cuneate-based leaves, those of *A. panamensis* being much broader and rounded-truncate at base.

ALLOPLECTUS simulatus Morton, sp. nov. Herba 1-2 m. alta; caules non ramosi, tetragoni, apice ca. 3 mm. diam., appressopuberuli; folia per paria aequalia, longe petiolata, petiolo 5.5-6 cm. longo, puberulo; lamina foliorum late elliptica, 14-17 cm. longa, 6-7.5 cm. lata, acuminata, basi late cuneata, paullo obliqua, subherbacea, serrulata, utrinque viridis et sparse puberula, pilis flavidis, flaccidis, paucicellularibus, venis lateralibus ca. 9-jugis; inflorescentia axillaris, pauciflora, bracteis deciduis, pedicellis 2-3 cm. longis, hirsutis; calyx rubro-aurantiacus, lobis subaequalibus, ovatis, 2.5-2.7 cm. longis, acutis, argute serratis, externe hirsutis, praecipue in linea mediali; corolla externe rubro-aurantiaca, intus lutea, ca. 5 cm. longa, in calyce obliqua, tubo faucem versus ampliato, densissime hirsuto, limbo valde obliquo, ca. 1.7 cm. lato, lobis subaequalibus, recurvis, intus glabris.—CHIRIQUÍ: vicinity of Bajo Mona and Quebrada Chiquero, alt. 1500 m., July 18, 1940, *R. E. Woodson & R. W. Schery 537* (U. S. Nat. Herb., no. 1, 808, 045, TYPE).

Closely related to *A. tetragonus* of Costa Rica, but differing in pubescence. In *A. tetragonus* the pubescence of the stems and lower leaf surface is closely appressed, but in *A. simulatus* the hairs are not appressed, but tortuous, very short and few-celled. In the Gesneriaceae, as a whole, the character of the hairs is very constant within the species, so this character alone would be sufficient to separate these two species. There are other differences also. The calyx of *A. simulatus* is larger and broader, the corolla more densely hirsute and the limb broader.

BESLERIA Allenii Morton, sp. nov. Frutex 1–1.5 m. altus; caules non ramosi, teretes, graciles, ca. 3 mm. diam., apicem versus 1 mm. diam., dense et breviter puberuli; folia per paria aequalia, petiolata, petiolo 0.8–4 cm. longo, gracili, puberulo; lamina foliorum oblonga, 7–13 cm. longa, 3–4.7 cm. lata, acuminata, basi late cuneata, paullo obliqua, membranacea, irregulariter serrata, supra atroviridis, glabra, subtus pallidior, praecipue in venis strigosa, venis lateralibus 10- vel 11-jugis subtus prominulis; inflorescentia axillaris, umbellata, 3- vel 4-flora, pedunculo communi ca. 2.5 cm. longo, parce pilosulo, pedicellis ca. 12 mm. longis; calyx viridis, lobis paullo inaequalibus, lobo postico ovato, reflexo, ca. 1.4 cm. longo, 7 mm. lato, lateralibus ovato-lanceolatis, obliquis, ca. 15 mm. longis et 6 mm. latis, anticis lanceolatis, ca. 15 mm. longis et 5 mm. latis, omnibus longe et acriter acuminatis, argute serratis, externe hirsutis, intus glanduloso-pilosulis; corolla flava, 3.5–4 cm. longa, in calyce horizontalis, basi postice calcarata (7 mm.), tubo basi ca. 5 mm. diam., sursum valde ventricosus, faucem versus non contracto, 1.8–2 cm. lato, externe glanduloso-pilosulo, intus glabro, limbo magno, terminali, bilabiato, lobis latis, rotundatis, intus glabris; filamenta glabra; antherae inclusae, cohaerentes, ca. 1.5 mm. longae et 2 mm. latae, loculis confluentibus; ovarium pilosulum; stylus pilosulus; stigma bilobum; discus annularis, antice evanescens, postice magnus, crassus, puberulus.—COCLÉ: vicinity of La Mesa, north of El Valle de Anton, alt. 1000 m., May 12, 1941, *Paul H. Allen 2371* (U. S. Nat. Herb., no. 1,793,964, TYPE).

This species belongs to section *Neobesleria* subsect. *Wendlandiana*. From *Besleria Wendlandiana* Hanst., of Costa Rica and Panama, it differs in the strongly ventricose, very broad corolla. From *B. columbiana* Morton it differs in the shorter peduncle and longer pedicels, the much larger calyx lobes, and the much larger and broader corolla.

BESLERIA ALLENII var. **paucivenia** Morton, var. nov. A var. *typica* venis lateralibus paucioribus (7- vel 8-jugis), inflorescentia uniflora, pedunculo communi brevi (1–1.5 cm. longo), pedicellis longioribus (1.5–2 cm. longis) differt.—COCLÉ: hills north of El Valle de Anton, alt. 1000 m., July 14, 1941, *Paul H. Allen 2188* (U. S. Nat. Herb., no. 1,806,127, TYPE).

BESLERIA BARBENSIS var. **hirsuta** Morton, var. nov. Herba 1 m. alta; caules non ramosi, ca. 3 mm. diam., apicem versus ca. 2 mm.

diam., hirsuti; folia per paria aequalia, petiolata, petiolo 2–3 cm. longo, gracili, hirsuto; lamina foliorum elliptica, 8–12 cm. longa, 4–5.5 cm. lata, breviter acuminata, basi cuneata, aequalis, herbacea, inconspicue serrulata, supra viridis, subtus pallidior, utrinque hirsuta, venis lateralibus 11- vel 12-jugis, subtus prominulis; inflorescentia axillaris, uniflora, pedunculo communi nullo, bracteis nullis, pedicello 3–3.5 cm. longo, gracili, hirsuto; calycis lobi virides, fere liberi, paullo inaequales, lobo postico ovato, ca. 12 mm. longo et 7 mm. basi lato, alteris oblongis, ca. 13 mm. longis, 5 mm. latis, omnibus acutis, argute serratis (dentibus subulatis, apice glandulosis), externe hirsutis, intus glabris; corolla aurantiaca, ca. 2 cm. longa, in calyce erecta, basi vix saccata, tubo supra basim ca. 4.5 mm. lato, sursum paullo ventricoso et 7 mm. lato, externe apice hirsuto, intus lineam horizontalem sparse pilosam gerente, limbo satis magno, ca. 12 mm. lato, terminali, bilabiato, lobis orbiculatis, patentibus, ca. 5 mm. longis et 7 mm. latis, rotundatis, subintegris, externe pilosis, intus glabris; filamenta glabra; antherae cohaerentes, inclusae, quadratae, ca. 1.5 mm. longae et 2 mm. latae, loculis confluentibus; ovarium apice pilosum; stylus pilosulus; stigma bilobum; discus annularis, integer, glaber, brevis, crassus.—CHIRIQUÍ: on the trail from Cerro Punta to headwaters of Rio Caldera, alt. 2250–2500 m., Jan. 14, 1939, *Paul H. Allen 1449* (U. S. Nat. Herb., no. 1,749,713, TYPE).

BESLERIA crassicaulis Morton, sp. nov. Herba 1.5–2.1 m. alta; caules crassissimi, non ramosi, ca. 11 mm. diam., apice ca. 9 mm. diam., teretes, densissime flavo-sericei; folia per paria aequalia, petiolata, petiolo 4–4.5 cm. longo, crassissimo, 5–9 mm. diam., densissime flavo-sericeo; lamina foliorum oblonga, magna, plus quam 30 cm. longa, 10 cm. lata, abrupte et breviter acuminata, basi obtusa vel late cuneata, subaequalis, integra, subcoriacea, supra viridis, glabra, subtus pallidior, praecipue in nervo mediali et venis primariis sericeo-strigosa, venis lateralibus verisimiliter ca. 12-jugis; inflorescentia axillaris, multiflora, pedunculo communi obsoleto, pedicellis numerosissimis, 12–15 mm. longis, gracilibus, subhirsutis; calycis lobi orbiculares, 5 mm. longi, 4 mm. lati, herbacei, rotundati, non mucronati, venosi, integri, externe praecipue basim versus subhirsuti, intus glabri, margine valde ciliati; corolla coccinea, ca. 17 mm. longa, in calyce paullo obliqua, basi saccata, tubo supra basim 4 mm. diam., sursum non ventricoso, 5 mm. diam., in fauce non contracto, externe glabro, intus glabro, limbo terminali,

subregulari, ca. 6 mm. lato, lobis suborbiculatis, ca. 2.5 mm. longis, subintegris, rotundatis, utrinque glabris; filamenta glabra; antherae loculi parvi, ca. 0.8 mm. longi, confluentes; ovarium fere glabrum, apice breviter pilosulum; stylus sparse pilosulus; stigma bilobum; discus annularis, glaber, brevis.—DARIEN: Cana-Cuasi Trail, Chepigana District, alt. 600 m., Mar. 12, 1940, *M. E. & R. A. Terry 1534* (Herb. Field Mus., no. 1,035,994, TYPE).

A species recalling the Colombian *Besleria maxima* Morton and *B. tambensis* Morton in its large leaves, very thick, densely hairy stem, and congested inflorescences. However, *B. crassicaulis* is probably not closely allied to either, but rather to *B. notabilis* Morton of Costa Rica, which has smaller, oblong calyx lobes only 3 mm. long and 1.5 mm. wide, and a smaller unspurred corolla.

BESLERIA obliqua Morton, sp. nov. Frutex 2 m. altus; caules ramosi, teretes, ca. 5 mm. diam., apicem versus ca. 2 mm. diam., breviter et dense scabro-pilosuli; folia per paria subaequalia, petiolo 1–2 cm. longo, scabro-pilosulo; lamina foliorum lanceolata, 4–7 cm. longa, 1.2–2.1 cm. lata, acuminata, basi cuneata, subaequalis, integra, chartacea, supra viridis, scabra (pilis patulis, basi valde inflatis), subtus pallidior, ubique pilosula, venis lateralibus 6-jugis; inflorescentia axillaris, pauciflora, pedunculo communi obsoleto, pedicellis ca. 5 mm. longis, pilosulis; calyx viridis, quam corolla multo brevior, lobis ovatis, paullo inaequalibus, postico ca. 2.5 mm. longo et lato, alteris ca. 3 mm. longis et 2 mm. latis, omnibus fere liberis, obtusis, non mucronatis, non venosis, externe pilosulis, intus glabris; corolla aurantiaca, ca. 17 mm. longa, in calyce subhorizontalis, basi subcalcarata (2 mm.), tubo supra basim ca. 4 mm. diam., sursum tubuloso, non ventricoso, externe sparse pilosulo, intus basi glabro, sursum glanduloso-pilosulo, in fauce non vel vix contracto, ca. 5 mm. lato, limbo terminali, ca. 7 mm. lato, lobis suborbiculatis, subaequalibus, ca. 3 mm. longis et latis, utrinque glabris, integris, rotundatis; filamenta basi in tubum antice ca. 3 mm. longum connata, glabra, partibus liberis brevibus, ca. 4 mm. longis, glabris; antherae liberae, inclusae, parvae, ca. 0.7 mm. longae, loculis divergentibus, apice confluentibus; staminodium magnum, ca. 4 mm. longum, antheram sterilem gerens; ovarium pilosulum; stylus pilosulus, brevis; stigma paullo bilobum; discus annularis, glaber, antice brevior.—COCLÉ: vicinity of La Mesa, north of El Valle de Anton, alt. 1000 m., May 12, 1941, *Paul H. Allen 2396* (U. S. Nat. Herb., no. 1,793,974, TYPE).

This species is most closely related, perhaps, to *B. miniata* Morton, and, like that, will key out to section *Neobesleria* subsect. *Axillares* in my "Revision of *Besleria*."¹ I think, however, that these two species, and perhaps also *B. flava* Morton, are best referred to *Eubesleria* sect. *Sessiles*. From *B. miniata* of Ecuador the present species differs strongly in pubescence, the leaves in that species being glabrous above and merely strigillose on the veins beneath. In *B. obliqua* the leaves are densely scabro-pilose above, the hairs being very strongly inflated at base, and are spreading-pilosulous all over the lower surface.

The only Central American species with which *B. obliqua* could be confused is *B. solanoides* H.B.K., but that also has leaves nearly glabrous above and merely strigose beneath, and the corolla is erect and not horizontal in the calyx.

CAMPANEA CHIRIQUANA Morton, Ann. Mo. Bot. Gard. 26: 310. 1939.—CHIRIQUÍ: Valley of Río Chiriquí Viejo, near Monte Lirio, Apr. 3, 1938, *Gene White* 62. Previously known only from the type.

CAMPANEA HUMBOLDTII (Kl.) Oerst. Centralamer. Gesner. 34. 1858.—CHIRIQUÍ: Valley of Upper Río Chiriquí Viejo, alt. 1300–1900 m., July 17, 1937, *Peggy & Gene White* 20; vicinity of Bajo Chorro, alt. 1900 m., July 20–22, 1940, *Woodson & Schery* 656. Originally collected in Veraguas, Panama, but not again collected in Panama until recently.

CENTROSOLENIA **lineata** Morton, sp. nov. Herba epiphytica, subcaulis; caudex brevis, crassissimus, ramosus, albidus, glaber; folia petiolata, numerosa, conferta, petiolo usque ad 5 cm. longo, crassissimo, basi parce pilosulo, sursum glabro; lamina foliorum suboblanceolata, 14–24 cm. longa, 3.8–6.8 cm. lata, apice longe acuminate, basi longe cuneata, decurrens, remote denticulata, supra viridis, subtus siccitate brunnea, utrinque glaberrima, venis lateralibus 9-jugis, venis secundariis obscuris; flores axillares, fasciculati, numerosi, pedicellis 6–12 mm. longis, gracilibus, glabris; calycis lobi rubro-brunnei, liberi, subulati, filiformi-attenuati, basi 1.5–2 mm. lati, medio 0.2–0.5 mm. lati, inaequales, anteriores ca. 18 mm. longi, posticus reflexus, ca. 13 mm. longus, omnes externe parce strigillosi, apicem versus ciliati; corolla alba, externe et intus rubro-brunneo-lineata, 4 cm. longa, in calyce horizontalis, basi calcarata (2 mm.), tubo basi ca. 3 mm. diam., gradatim ampliato, subinfundi-

¹ Contr. U. S. Nat. Herb. 26: 404. 1939.

buliformi, non ventricoso, in fauce non contracto, ca. 15 mm. lato, externe glabro, intus glanduloso-pilosulo, limbo bilabiato, ca. 2 cm. lato, lobis albis, patentibus, lobo antico majore, orbiculato, ca. 1 cm. longo, rotundato, externe glabro, intus valde pilosulo, glanduloso-ciliato, lobis alteris subaequalibus, minoribus, ca. 5 mm. longis, utrinque glabris, glanduloso-ciliatis; filamenta basi in corollae tubo adnata, per paria connata, glabra, apice incurva; antherae glabrae, non barbatae, inclusae, connatae, subquadratae, ca. 1.2 mm. longae et 1.5 mm. latae, connectivo crasso, loculis discretis, divergentibus; ovarium pilosum; stylus crassus, glanduloso-pilosulus; stigma stomatomorphum; disci glandula postica solum evoluta, magna, crassa, glabra, integra.—COCLÉ: hills on trail to La Mesa, north of El Valle de Anton, alt. 1000 m., Aug. 31, 1941, *Paul H. Allen 2717* (U. S. Nat. Herb., no. 1,821,127, TYPE).

In habit somewhat similar to *Centrosolenia decurrens* Morton, of Costa Rica, which may be distinguished by the following key. The genus *Centrosolenia* is new to Panama.

Corolla tube ventricose at middle; anthers bearded at apex; leaves strigose on both surfaces, hirsute on veins beneath.....*C. decurrens*
 Corolla tube infundibuliform, gradually widened to throat; anthers glabrous; leaves entirely glabrous.....*C. lineata*

COLUMNEA Allenii Morton, sp. nov. Planta epiphytica, pendens; caules vix ramosi, graciles, ca. 1.5 mm. diam., parce strigosi; folia aequalia, breviter petiolata, petiolo ca. 3 mm. longo, strigoso; lamina foliorum oblongo-elliptica, usque ad 2 cm. longa et 1.1 cm. lata, breviter acuminata, basi rotundata, haud obliqua, integra, crassa, utrinque glabra, venis utrinque immersis, obscuris; flores axillares, solitarii, ebracteati, pedunculo 1.7–2 cm. longo, rubro-strigoso, pilis multicellularibus, flaccidis; calyx erectus, rubro-tinctus, lobis paullo inaequalibus, 2.2–3 cm. longis, ca. 1 cm. basim versus latis, longe et acriter acuminatis, integris, externe vix strigillosis, ciliatis, intus basim versus longe hirsutis; corolla coccinea, in calyce erecta, 6.8–7.5 cm. longa, basi subcalcarata (3 mm.), tubo calycem aequante, supra basim 4 mm. diam., sursum ampliato, fauce ca. 15 mm. lato, externe parce piloso, limbo valde bilabiato, galea 4–4.5 cm. longa, ca. 2.5 cm. lata, apice truncata, lobis lateralibus cum galea alte connatis, ca. 14 mm. longis, lobo inferiore reflexo, oblongo-oblancheolato, 2.7–3 cm. longo, 7–8 mm. lato; filamenta basi in tubum 4 mm. longum postice fissum connata, glabra; antherae exsertae, per paria connatae, oblongae, ca. 3 mm. longae, 1 mm. latae; ovarium

albo-pilosum; stylus pilosulus; stigma bilobum.—COCLÉ: hills north of El Valle de Anton, alt. 1000 m., June 23, 1940, *Paul H. Allen*, 2179 (U. S. Nat. Herb., nos. 1,791,874–5, TYPE).

COLUMNEA arguta Morton, sp. nov. Planta epiphytica; caules pendentes, elongati, graciles, ca. 1.5 mm. diam., hornotini rubro-hispidi, pilis rigidis, patentibus; folia aequalia, brevissime petiolata, petiolo ca. 1 mm. longo, hispido; lamina foliorum lanceolata, 1.6–2 cm. longa, 6–7 mm. lata, longe acuminata, basi rotundata, paullo obliqua, exauriculata, non amplexicaulis, crassa, integra, utrinque glabra, margine ciliata excepta, supra viridis, subtus rubescens, venis lateralibus 1- vel 2-jugis, obscuris; flores verisimiliter solitarii, breve pedunculati, pedunculo crasso, hispido; calyx erectus, lobis subaequalibus, ca. 15 mm. longis, 9 mm. latis (dentibus inclusis), utrinque hirsutis, laciniatis (dentibus elongatis, usque ad 3 mm. longis et 1 mm. latis, ca. 5 utroque latere); corolla in calyce erecta, rubra, fauce luteo-lineata, ca. 6 cm. longa, basi subcalcarata (3 mm.), tubo supra basim 4 mm. diam., sursum paullo ampliato, ca. 1 cm. lato, externe sparse piloso, intus basi glanduloso, limbo bilabiato, intus glabro, galea 2 cm. longa, apice truncata, latissima, ca. 2.7 cm. lata, lobis lateralibus magnis, ca. 13 mm. longis, lobo inferiore elliptico, reflexo, ca. 2 cm. longo et 1.1 cm. lato, rotundato; filamenta in tubum 4 mm. longum postice fissum connata, glandulosa, sursum glabra; antherae ignotae; ovarium sericeum; stylus sparse pilosulus; stigma truncatum; disci glandula postica solum evoluta, glabra, crassa, bidenticulata.—COCLÉ: hills north of El Valle de Anton, vicinity of La Mesa, alt. 1000 m., Jan. 21, 1941, *Paul H. Allen* 2336 (U. S. Nat. Herb., no. 1,806,120, TYPE).

The form of the corolla is unusual in the subgenus *Eucolumnea*. The galea is short and very broad, the lateral lobes large, and the lower lobes very much broader than in the other species. The corolla approaches that of section *Pentadenia*, but it is not ventricose or curved. It differs also from the Panama species of *Pentadenia* in its glabrous leaves.

The closest relationship is apparently with *Columnea flaccida* Seem. (Bot. Voy. Herald 186. 1852–57), originally described from near Gualaca, Veraguas, Panama, which has been collected a few times in Costa Rica but not since found in Panama. It is a pendent epiphyte, flowering while leafless, with stems sparingly strigose (rather than coarsely hispid as in *C. arguta*), and corolla with a shape characteristic of *Eucolumnea*.

COLUMNEA citrina Morton, sp. nov. Planta terrestris; caulis ca. 60 cm. longus, non ramosus, basi ca. 8 mm. diam., apice 3 mm. diam., juventute strigosus; folia per paria valde inaequalia, majora oblongo-lineararia, 20–25 cm. longa et 5 cm. lata, falcata, sessilia, longe acuminata, basi inferiore auriculata, semiamplexicaulia, superiore cuneata, crassa, supra glabra, viridia, subtus substrigosa, pallidiora, ca. 6 cm. infra apicem maculam rubram ca. 8 mm. longam gerentia; folia minora stipuliformia, sessilia, lineari-lanceolata, ca. 2 cm. longa et 5 mm. lata, longe acuminata, basi valde obliqua, basi inferiore auriculata et amplexicaulia, superiore rotundata; inflorescentia axillaris, biflora, bibracteata, bracteis flavis, basalibus, lineari-lanceolatis, ca. 1.5 cm. longis et 5 mm. latis, longe acuminatis, externe strigosis, intus glabris, pedunculis crassis, 1–1.5 cm. longis, dense strigosis; calyx pallide viridi-luteus, in anthesin ca. 3 cm. longus, demum 3.8 cm. longus, lobis aequalibus, erectis, lanceolatis, liberis, ca. 12 mm. latis, longe et acriter acuminatis, integris, externe substrigosis, intus glabris, linea mediali excepta; corolla lutea, intus roseo-lineata, ca. 4.7 cm. longa, in calyce erecta, basi subcalcarata (ca. 2 mm.), tubo 3 mm. super basi 5 mm. diam., sursum ventricosus et 1 cm. diam., apicem versus paullo contracto, fauce tubuloso, externe valde hirsuto, limbo valde bilabiato, fauce et lobis intus glabris, galea 2.5 cm. longa, apice alte biloba (ca. 7 mm.), lobis lateralibus cum galea alte connatis, ca. 12 mm. longis, lobo inferiore reflexo, lineari-oblongo, 18 mm. longo, 5 mm. lato; filamenta basi in tubum 4 mm. longum connata, glabra; antherae exsertae, 3 mm. longae et 2.5 mm. latae; staminodium subulatum, 3 mm. longum; ovarium dense albo-sericeum; stylus glaber; stigma stomatomorphum; disci glandula postica solum evoluta, magna, crassa, glabra, subintegra; placentae lamellae intus solum ovuliferae.—**PANAMÁ**: Cerro Campana, alt. 1000 m., April 21, 1941, *Paul H. Allen 2404* (U. S. Nat. Herb., nos. 1,793,913–4, TYPE).

For discussion, see under *C. rubra*.

COLUMNEA conferta Morton, sp. nov. Frutex epiphyticus, 0.6–1.2 m. altus; caules non ramosi, crassi, ca. 7 mm. diam., strigosi, mox glabri; folia apice conferta, per paria valde inaequalia, subsessilia, petiolo usque ad 4 mm. longo, crasso, strigoso; lamina foliorum majorum oblanceolata, subfalcata, 28–32 cm. longa, 6.5–7 cm. lata, apice breviter acuminata, basi valde obliqua, non amplexicaulis, chartacea, remote serrulata, supra viridis, glabra, subtus sparse strigosa, ca. 7 cm. infra apicem maculas 2 rubras gerens, venis

lateralibus 10–12-jugis; folia minora stipuliformia, decidua; inflorescentia axillaris, pauciflora, bracteis linearibus, ca. 2.5 cm. longis, 8 mm. latis, longe acuminatis, breviter petiolatis, integris, viridibus, pedunculis ca. 9 mm. longis, dense strigosis; calycis lobi pallidi, subaequales, ovati, ca. 2.3 cm. longi, basim versus ca. 1 cm. lati, longe et acriter acuminati, glanduloso-serrati (dentibus minutis ca. 10 utroque latere), externe substrigosi, intus fere glabri; corolla lutea, intus postice rubro-lineata, ca. 4 cm. longa, in calyce erecta, basi parum saccata, tubo supra basim paullo contracto et 3 mm. diam., sursum ampliato, non ventricoso, ca. 9 mm. diam., externe sparse glanduloso-piloso, intus glabro, fauce vix contracto, limbo obliquo, verisimiliter paullo bilabiato, lobis subaequalibus, ca. 6 mm. longis, intus glabris; filamenta basi in tubum 3.2 mm. longum postice fissum connata, glabra; antherae inclusae, cohaerentes, quadratae, ca. 1.8 mm. longae et latae; ovarium sparse pilosum; stylus glaber; stigma stomatomorphum, glabrum; disci glandula postica solum evoluta, magna, crassa, glabra, non denticulata.—DARIEN: in rain forest, on crest of Cana-Cuasi Trail, Chepigana District, alt. 1650 m., Mar. 15, 1940, *M. E. & R. A. Terry 1554* (Herb. Field Mus., no. 1,035,985, TYPE).

Perhaps related to *Columnea crassa*, but the leaves are larger and much thinner, the stems are not densely hirsute, but strigose or glabrate, and the calyx lobes are not hirsute.

COLUMNEA CONSANGUINEA Hanst. *Linnaea* **34**: 383. 1865–66.—CHIRIQUÍ: Bajo Chorro, alt. 1900 m., July 20–22, 1940, *Woodson & Schery 651*. Previously known from Costa Rica.

COLUMNEA crassa Morton, sp. nov. Planta epiphytica; caules erecti, crassi, 75 cm. longi, ca. 1 cm. diam., apice paullo angustiores, dense brunneo-hirsuti, pilis tenuibus, patentibus, multicellularibus; folia per paria inaequalia, petiolata, petiolo ca. 8 mm. longo, crassissimo, dense hirsuto; lamina foliorum majorum anguste oblanceolata, subfalcata, integra, usque ad 21 cm. longa et 5 cm. lata, longe acuminata, basi valde obliqua, crassa, supra viridis, glabra, subtus viridis, maculas rubras (saepe 2) 5–6 cm. infra apicem gerens, ubique subdense flavo-strigosa, venis primariis ca. 8-jugis; folia minora stipuliformia, sessilia, anguste lanceolata, ca. 2.5 cm. longa, ca. 8 mm. lata, basi inferiore auriculata et amplexicaulia, viridia, supra glabra, subtus strigosa; inflorescentia axillaris, uniflora?, floribus sessilibus; calyx flavus?, lobis erectis, paullo inaequalibus,

1.6–2 cm. longis, 4–7 mm. latis, glanduloso-serratis (dentibus numerosis), acuminatis, externe appresso-hirsutis, intus subglabris, linea mediali subhirsutis; corolla ignota; disci glandula postica solum evoluta; placentae lamellae intus solum ovuliferae.—PANAMÁ: Cerro Campana, alt. 1000 m., Apr. 21, 1941, *Paul H. Allen 2423* (U. S. Nat. Herb., nos. 1,793,929–30, TYPE).

Related to *C. consanguinea* Hanst. (*Linnaea* 34: 383. 1865–6), of the section *Collandra*, which may be distinguished as follows:

Leaves lacking red spots beneath; calyx lobes entire.....*C. consanguinea*
 Leaves with 2 or more red spots beneath about a third from the apex; calyx lobes serrate.....*C. crassa*

COLUMNEA darienensis Morton, sp. nov. Frutex, 1.5–4.5 m. altus; caules vix ramosi, articulati, internodiis brevibus, dense strigosi, apice ca. 3 mm. diam.; folia per paria valde inaequalia, majora petiolata, petiolo 10–14 mm. longo, strigoso; lamina foliorum majorum oblanceolata, 16–23 cm. longa, 4–5.5 cm. lata, acuminata, basi obliqua, late cuneata, non amplexicaulis, integra, chartacea, supra viridis, glabra, subtus pallidior, non rubro-maculata, strigosa (praecipue in venis), venis lateralibus 7-jugis, supra obscuris; folia minora stipuliformia, minuta, decidua, lanceolata, acuminata, supra glabra, subtus strigosa; inflorescentia axillaris, pauciflora, bracteis basalibus ovatis, ca. 1.7 cm. longis, integris, acuminatis, fortasse rubris, pedicellis ca. 5 mm. longis, crassis, strigosis; calyx verisimiliter ruber, lobis subaequalibus, lanceolatis, ca. 1.7 cm. longis, 5 mm. latis, acuminatis, glanduloso-serrulatis (dentibus ca. 7 utroque latere), externe nervo mediali et marginibus strigosis, intus glabris; corolla coccineo-aurantiaca, 2.4 cm. longa, in calyce erecta, tubulosa, tubo basi ca. 3 mm. diam., sursum paullo ventricoso et 5 mm. lato, faucem versus paullo contracto et 4.5 mm. lato, externe dense flavo-strigoso, limbo parvo, vix bilabiato, ca. 5 mm. lato, lobis erectis, suborbiculatis, rotundatis, 3 inferioribus ca. 1 mm. longis, 2 superioribus ca. 2 mm. longis, altius connatis; filamenta basi in tubum brevem connata, glabra; antherae quadratae, ca. 1.5 mm. longae et latae; ovarium apice strigosum; stylus glaber; disci glandula postica solum evoluta, crassa, glabra, tridenticulata.—DARIEN: Cerro de Garagará, Sambú Basin, alt. 500–974 m., Feb. 7, 1912, *H. Pittier 5660* (U. S. Nat. Herb., no. 715,942, TYPE); rain forest on the crest of the Cana-Cuasi Trail, Chepigana District, alt. 1650 m., Mar. 13, 1940, *M. E. & R. A. Terry 1547* (Herb. Field Mus.).

From *Columnea crassa* this species differs in its much narrower

calyx lobes, strigose rather than hirsute stems, and absence of red spots on the lower leaf surface. It is probably more closely related to *C. consanguinea*, from which it differs in the serrate rather than entire calyx lobes, broader bracts, and absence of red spots on the leaves. *Columnea conferta* has a differently shaped corolla limb with much larger, broader, more oblique lobes, as well as larger, thinner, differently shaped, red-spotted leaves.

COLUMNEA dissimilis Morton, sp. nov. Planta epiphytica; rami usque ad 1 m. longi, internodiis brevibus, juniores rubri, hispidi, pilis patentibus, rubris, multicellularibus; folia per paria inaequalia, petiolata, petiolo 5–9 mm. longo, hispido; lamina foliorum majorum elliptico-oblonga, usque ad 7 cm. longa et 3 cm. lata, apice acuminata, basi valde obliqua (latere inferiore rotundato, superiore cuneato), integra, utrinque viridis, supra pilosula, subtus praecipue in venis rubro-hirsuta; folia minora saepe subsessilia, ovata vel suborbicularia, acuta vel obtusa, basi rotundata, usque ad 3 cm. longa et 1.8 cm. lata; flores saepe 3 in axillis aggregati, pedunculati, pedunculo 1–1.7 cm. longo, dense longe rubro-hirsuto; calyx ruber, erectus, lobis aequalibus, liberis, lanceolatis, 2.5–3 cm. longis, acuminatis, remote glanduloso-denticulatis, herbaceis, utrinque rubro-hirsutis; corolla rubra, in calyce paullo obliqua, 3.5–4 cm. longa, basi postice subcalcarata, tubo basi 4 mm. lato, tubuloso, vix ampliato, non ventricosus, externe dense rubro-hirsuto, intus glabro, fauce 8 mm. lato, non contracto, lobis 5 aequalibus, incurvatis, ovatis, vix acutis, ca. 4.5 mm. longis, crassis, intus glabris, inter lobos appendiculata, appendiculis patentibus, lineari-subulatis, ca. 7 mm. longis, dense hirsutis; filamenta basi in tubum 4 mm. longum postice fissum connata, sursum libera, gracilia, glabra; antherae quadratae, ca. 2 mm. longae et latae; ovarium albo-pilosum; stylus gracilis, glaber; stigma bilobum; disci glandula postica solum evoluta, lata, crassa, glabra, tridenticulata.—COCLÉ: trail to Las Minas, north of El Valle de Anton, alt. 1000 m., May 10, 1941, *Paul H. Allen 2483* (U. S. Nat. Herb., no. 1,808,614, TYPE); same locality, June 23, 1940, *Allen 2164*, and July 14, 1940, *Allen 2191*; PANAMÁ: hills above Campana, alt. 600–800 m., July 1, 1939, *Allen 1875*.

COLUMNEA hirsutissima Morton, sp. nov. Planta epiphytica; caules 13–30 cm. longi, non ramosi, crassi, perspicue rubro-hirsutissimi, pilis multicellularibus, ca. 5 mm. longis; folia per paria valde inaequalia, subsessilia, petiolo crasso, 1–2 mm. longo, hirsuto;

lamina foliorum majorum oblonga vel anguste oblonga, 6–10 cm. longa, 1.7–3.5 cm. lata, acuta, basi rotundata vel subcordata, non obliqua, paullo crenulata vel serrulata, utrinque viridis, non rubromaculata, dense hirsuta, pilis rubescentibus, multicellularibus, 7–9-jugis; folia minora sessilia, ovata, ca. 1 cm. longa, decidua; flores solitarii, axillares, ebracteati, pedunculati, pedunculo 8–12 mm. longo, dense hirsuto; calyx erectus, lobis subaequalibus, 1.7–1.8 cm. longis, linearibus, ca. 2.5 mm. basim versus latis, longe acuminatis, remote glanduloso-denticulatis (dentibus 2 vel 3 utroque latere), utrinque hirsutis, pilis saepe rubris; corolla rubra, in calyce erecta, 6–7.5 cm. longa, basi subcalcarata, tubo supra basim ca. 4 mm. lato, sursum tubuloso et gradatim ampliato, non ventricoso, externe sparse piloso (pilis multicellularibus non glandulosis), intus glanduloso, fauce ca. 8–9 mm. lato, limbo valde bilabiato, intus pilosulo, galea 2.3–2.5 cm. longa, apice truncata, 1.4 cm. lata, lobis lateralibus cum galea alte connatis, brevibus, ca. 6 mm. longis, lobo inferiore reflexo, lineari-oblongo, ca. 13 mm. longo, 3 mm. lato, obtuso; filamenta basi in tubum 4 mm. longum postice fissum connata, basim versus glandulosa, sursum glabra; antherae connatae, exsertae, oblongae, ca. 2 mm. longae, 1 mm. latae; ovarium allopilosum; stylus dense glanduloso-pilosulus; stigma bilobum; disci glandula postica solum evoluta, glabra, crassa, tridenticulata.—**COCLÉ:** hills north of El Valle de Anton, alt. 800–1000 m., Jan. 2, 1941, *Paul H. Allen 2288* (U. S. Nat. Herb., no. 1,806,116, **TYPE**); same locality, Nov. 21, 1940, *Allen 2279* (*Dorothy Allen*), Jan. 21, 1941, *Allen 2311* and *2348*.

For relationships, see under *C. rubra* below.

COLUMNEA incarnata Morton, sp. nov. Frutex epiphyticus; caules vix ramosi, sulcati, apice ca. 3 mm. diam., flavo-strigosi, demum glabrescentes; folia per paria subaequalia, petiolata, petiolo 1.3–2.3 cm. longo, strigoso; lamina foliorum oblanceolata, 7–12 cm. longa, 2.3–4 cm. lata, longe acuminata, basi aequalis, cuneata, integra, subcrassa, supra viridis, glabra, subtus pallidior, non rubromaculata, in margine et venis strigosa, venis lateralibus 4- vel 5-jugis, supra obscuris; inflorescentia axillaris, floribus solitariis vel binis, bracteis basalibus lineari-subulatis, ca. 7 mm. longis, basi ca. 1.5 mm. latis, acuminatis, intus glabris, externe strigosis, integris, pedicellis cernuis, 3–4 cm. longis, dense flavo-strigosis; calycis lobi virides, ovati, 3.3–3.5 cm. longi, ca. 1.5 cm. lati, longe et acriter acuminati, fere integri, remote glanduloso-denticulati, utrinque

glabri, parce ciliati; corolla incarnata, 6.5–7 cm. longa, in calyce erecta, basi subsaccata, tubo supra basim 5 mm. diam., abrupte ventricosus, ca. 2 cm. longus, in calyce incluso, externe puberulus, intus glandulosus, limbo curvato, valde obliquo, bilabiato, galea ca. 5 cm. longa, apice truncata, ca. 3.5 cm. lata, lobis lateralibus cum galea alte connatis, magnis, partibus liberis ca. 2.3 cm. longis, 1.3 cm. latis, rotundatis, lobo inferiore patente, magno, ca. 3 cm. longo et 1.1 cm. lato, lobis externe pilosis, intus glabris; filamenta basi in tubum 2 mm. longum postice fissum connata, dense glanduloso-puberula; antherae exsertae, cohaerentes, oblongae, 3 mm. longae et 1 mm. latae; ovarium albo-sericeum, apice pilosum; stylus glaber; stigma bilobum; disci glandula postica solum evoluta, magna, crassa, glabra, emarginata.—CHIRIQUÍ: vicinity of Bajo Chorro, alt. 1900 m., July 20–22, 1940, *R. E. Woodson & R. W. Schery 608* (Herb. Missouri Bot. Gard., TYPE).

This species belongs to the section *Pentadenia* and is perhaps related remotely to *C. magnifica*, which also has the disk reduced to a single posterior gland, in contrast to most of the other species of *Pentadenia*. It may be distinguished as follows:

Flowers pink; calyx glabrous, the lobes ciliate, subentire or remotely glandular-denticulate.....*C. incarnata*
 Flowers bright scarlet; calyx villous, the lobes conspicuously dentate.....*C. magnifica*

COLUMNEA LOCALIS Morton, Field Mus. Publ. Bot. **18**: 1165. 1938 (*Columnea microcalyx* var. *macrophylla* Donn. Smith, Bot. Gaz. **31**: 118. 1901, non *C. macrophylla* Kuntze).—This species has been known only from the type, collected in forests of Las Vueltas, Tucurrique, Costa Rica. It may now be reported from: PANAMA: Cerro de Garagará, Sambú Basin, southern Darien, alt. 500–974 m., Feb. 7, 1912, *Pittier 5625*; and CHIRIQUÍ: trail from Cerro Punta to headwaters of Río Caldera, alt. 2250–2500 m., Jan. 14, 1939, *Allen 1428*.

In the 'Flora of Costa Rica' on page 1162, in the key to *Columnea*, the name *C. microphylla* is printed *C. macrophylla*, by an unfortunate typographical error.

COLUMNEA obliqua Morton, sp. nov. Planta epiphytica; caules elongati, pendentes, non ramosi, straminei, teretes, ca. 2.5 mm. diam., parce flavo-strigosi, mox glabri; folia opposita, aequalia, subsessilia, lanceolata, usque ad 3.5 cm. longa et 1.2 cm. lata, apice longe acuminata, basi valde obliqua, rotundata, integra, crassa, supra viridia, subtus pallidiora et rubescentia, supra glabra, subtus in margine et venis strigosa; flores solitarii, axillares, pedunculo 7–15

mm. longo, 1 mm. crasso, substrigoso, apice paullo incrassato; calyx viridis, 1.2–1.8 cm. longus, lobis erectis, aequalibus, liberis, basi ca. 6 mm. latis, subcordatis, gradatim angustatis, longissime et acriter acuminatis, integris, externe parce strigosis, intus glabris, basi pilosula excepta; corolla aurantiaca, 6.5–8 cm. longa, in calyce erecta, basi postice paullo calcarata (1.5 mm.), tubo 3.7 mm. diam., sursum parce ampliata, non ventricoso, fauce ca. 12 mm. lato, externe parce pilosulo, intus glabro, limbo valde obliquo, bilabiato, galea erecta, integra, 3.3–3.8 cm. longa, lobis lateralibus cum galea alte connatis, ca. 1.3 cm. longis, lobo inferiore reflexo, lineari-oblongo, 1.4–1.7 cm. longo; filamenta basi in tubum 2 mm. longum postice fissum connata, sursum omnino libera, didynama, glabra, antheris oblongis, 1.6 mm. longis et 1 mm. latis, per paria connatis; ovarium albo-sericeum; stylus gracilis, parce pilosulus; stigma bilobum; disci glandula postica lata, magna, emarginata, crassa, glabra, antica parva, lineari-subulata.—CHIRIQUÍ: vicinity of Bajo Chorro, alt. 1900 m., July 20–22, 1940, *R. E. Woodson, Jr. & R. W. Schery 607* (U. S. Nat. Herb., no. 1,808,050, TYPE); same locality and date, *Woodson & Schery 677*.

COLUMNEA PANAMENSIS Morton, Ann. Mo. Bot. Gard. **26**: 312. 1939.—CHIRIQUÍ: vicinity of Finca Lérida, alt. 1750 m., July 7–11, 1940, *Woodson & Schery 235*. Previously known only from type.

COLUMNEA pectinata Morton, sp. nov. Planta epiphytica; caules pendentes, 100 cm. longi, rugosi, ca. 8 mm. diam., hornotini griseo-hirsuti; folia per paria inaequalia, subsessilia, petiolo vix 2 mm. longo, hirsuto; lamina foliorum majorum oblongo-falcata, usque ad 13 cm. longa et 5 cm. lata, abrupte acuminata, basi valde obliqua, basi inferiore subauriculata, crassa, apicem versus argute serrulata, supra viridis, hirsuta, subtus pallidior, apice sanguinea, ubique dense hirsuta, venis lateralibus 8–10-jugis; folia minora stipuliformia, sessilia, lanceolata, ca. 1.7 cm. longa, hirsuta, basi inferiore auriculata; inflorescentia axillaris, pluriflora, floribus breve pedunculatis, pedunculo crasso, ca. 5 mm. longo, hirsuto; calyx ruber, erectus, lobis subaequalibus, ca. 15 mm. longis, ca. 3 mm. latis, pectinato-fimbriatis (dentibus 5–6 utroque latere, subulatis, usque ad 4 mm. longis), utrinque dense hirsutis, pilis hyalinis, multicellularibus, capitato-glandulosis; corolla aurantiaca, in calyce erecta, e calyce vix exserta, ca. 1.7 cm. longa, basi subcalcarata, tubo supra basim ca. 4.5 mm. diam., sursum paullo ventricoso et 6.5 mm. diam., in fauce paullo contracto et 5 mm. diam., externe albo-piloso,

limbo regulari, haud bilabiato, 7 mm. lato, lobis patentibus, suborbiculatis, ca. 3 mm. longis, rotundatis, intus glabris; filamenta in tubum 5 mm. longum postice fissum connata, glabra, valde contorta; antherae inclusae, per paria cohaerentes, 1.5 mm. longae et 2 mm. latae; ovarium albo-sericeum; stylus crassus, glaber; stigma stomatomorphum; disci glandula postica solum evoluta, glabra, tridenticulata.—COCLÉ: vicinity of La Mesa, north of El Valle de Anton, alt. 1000 m., May 12, 1941, *Paul H. Allen 2394* (U. S. Nat. Herb., nos. 1,793,972–3, TYPE); same locality, June 23, 1940, *Allen 2177* and May 14, 1939, *Allen 1787*.

Related to *Columnnea purpurata* Hanst., which has larger leaves, not red beneath at apex, conspicuous bracts, and a larger calyx and corolla.

COLUMNEA perpulchra Morton, sp. nov. Planta epiphytica; caules non ramosi, crassi, basi ca. 7 mm. diam., apicem versus ca. 2.5 mm. diam., densissime brunneo-hirsuti, pilis saepe 6 mm. longis; folia per paria valde inaequalia, subsessilia, petiolo vix 2 mm. longo; lamina foliorum majorum oblongo-ob lanceolata, usque ad 16 cm. longa et 4.7 cm. lata, apice breviter et abrupte acuminata, basi valde obliqua sed non auriculata vel amplexicaulis, serrulata, herbacea, supra viridis, pilosa, subtus apice rubra, vel interdum ubique rubra vel rubro-maculata, hirsuta, venis lateralibus ca. 11-jugis, subtus prominulis; folia minora stipuliformia, sessilia, ovata, usque ad 2 cm. longa et 1 cm. lata, longe et acriter acuminata, basi valde obliqua, basi inferiore auriculata, subamplexicaulia, utrinque hirsuta, subtus apice rubra; inflorescentia biflora, axillaris, basi bibracteata, bracteis lanceolato-subulatis, ca. 7 mm. longis, integris, acuminatis, hirsutis, viridibus, pedicellis gracilibus, ca. 2 cm. longis, hirsutis; calyx pallidus, erectus, lobis subaequalibus, ca. 2 cm. longis, 3 mm. latis (dentibus exclusis), acuminatis, laciniatis (laciniis subulatis, usque ad 3 mm. longis, ca. 6 utroque latere), externe pilosis, intus glabris; corolla lutea (lobis basi coccineis), ca. 4 cm. longa, basi subcalcarata (3.5 mm.), tubo externe glaberrimo, intus glabro, supra basim contracto et 3.5 mm. diam., abrupte deflexo et ventricosus et ca. 8 mm. lato, faucem versus paullo contracto, fauce ca. 7 mm. lato, limbo subregulari, lobis reflexis, externe parce strigosis, lobis 2 superioribus ca. 2 mm. connatis, alteris liberis, suborbiculatis, rotundatis, omnibus ca. 5 mm. longis, intus glabris, eglandulosis; filamenta basi in tubum 8 mm. longum postice fissum connata, glabra, plus minusve contorta; antherae inclusae, connatae, quadratae, ca.

2 mm. longae et latae; ovarium fere glabrum; stylus glaber; stigma bilobum; disci glandula postica solum evoluta, glabra, crassa, emarginata.—COCLÉ: hills north of El Valle de Anton, vicinity of La Mesa, alt. 1000 m., Jan. 21, 1941, *Paul H. Allen 2305* (U. S. Nat. Herb., no. 1,806,117, TYPE); COLON: Dos Bocas, Río Fató Valley, alt. 40–80 m., Aug. 16, 1911, *H. Pittier 4209*. The related species *C. silvarum*, described below, may be distinguished as follows:

Corolla tube entirely glabrous; leaves red beneath at apex, or sometimes all over.

C. perpulchra

Corolla tube pilose externally, pilosulous at base within; leaves green, not at all red-spotted.....*C. silvarum*

COLUMNEA rubra Morton, sp. nov. Planta epiphytica; caulis stramineus, vix ramosus, strigosus, mox glaber; folia per paria inaequalia, majora brevissime petiolata, petiolo ca. 2 mm. longo, crasso, ca. 4 mm. diam.; lamina foliorum majorum anguste oblonga vel oblanceolata, usque ad 14 cm. longa et 4.7 cm. lata, acuta, basi subaequalis, rotundata, crassa, supra pallide viridis, glabra, subtus ubique rubra, strigosa, integra, nervo mediali valde incrassato, venis lateralibus ca. 8-jugis, supra obscuris, immersis, subtus prominulis; folia minora decidua; inflorescentia axillaris, biflora, bibracteata, bracteis lineari-lanceolatis, ca. 5 mm. longis, integris, externe rubro-strigosis, pedunculis ca. 1 cm. longis, dense rubro-strigosis; calyx ruber, ca. 1.9 cm. longus, lobis erectis, aequalibus, lineari-lanceolatis, ca. 5 mm. latis, longissime et acriter acuminatis, remote glanduloso-serratis (dentibus ca. 4 utroque latere), utrinque dense rubro-strigosis; corolla lutea, 7 cm. longa, in calyce erecta, basi subcalcarata (ca. 2 mm.), tubo supra basim 3 cm. lato, sursum gradatim ampliato, non ventricosus, fauce 11 mm. lato, externe piloso, pilis paucicellularibus, glanduloso-capitatis, galea 2.7 cm. longa, 1.4 cm. lata, integra, apice apiculata, lobis lateralibus ca. 1 cm. longis, cum galea longe connatis, lobo inferiore reflexo, lineari, 1.7 cm. longo, 4 mm. lato, lobis omnibus utrinque glanduloso-pilosulis; filamenta basi in tubum 5 mm. longum connata, glabra; antherae connatae, oblongae, ca. 2.2 mm. longae, 1.6 mm. latae; ovarium cylindricum, sericeum; stylus omnino glanduloso-pilosulus; stigma bilobum, glanduloso-pilosulum; disci glandula postica solum evoluta, glabra, crassa, integra.—COCLÉ: trail to Las Minas, north of El Valle de Anton, alt. 1000 m., May 10, 1941, *Paul H. Allen 2469* (U. S. Nat. Herb., no. 1,808,603, TYPE).

The above measurements for the corolla are taken from flowers preserved in liquid. In drying, the corollas contract a great deal.

The following measurements of dried corollas are given for comparison with herbarium specimens: Length 6–6.5 cm., tube above base 2 mm. broad, throat 7 mm. broad, galea 2.5 cm. long, ca. 7 mm. broad, lateral lobes ca. 7 mm. long, lower lobe ca. 1.4 cm. long.

The section *Cryptocolumnea* is a peculiar small one in which the corolla has the bilabiate shape of *Eucolumnea*, but the leaves are similar to those of *Collandra*. The only previously known North American species is *C. praetexta* Hanst. (*Linnaea* **34**: 394. 1865–66), originally collected at an undesignated locality in Costa Rica by Warscewicz, which has never been found again. *Columnea citrina*, described above, is certainly a member of the section, and the present species, *C. rubra*, will probably be found to belong there also, the corolla being that of *Eucolumnea*, but the leaves, by their shape and red coloration, suggesting those of *Collandra*. However, the characteristic stipuliform leaves are lacking on the specimen at hand. Another very distinctive species, *C. hirsutissima*, is described above. These species may be separated as follows:

- Stigma stomatomorphic; calyx lobes entire or nearly so; bracts large (2 cm. long or more); leaves very oblique at base, with the lower side auriculate and amplexicaul, green beneath with a purple spot toward apex.
 Bracts orbicular, crenulate; leaves villous above; stipuliform leaves 2.5–5 cm. long.....*C. praetexta*
 Bracts lanceolate, entire; leaves glabrous above; stipuliform leaves about 2 cm. long. Style and stigma glabrous; calyx lobes glabrous within except on median line; corolla lobes glabrous within.....*C. citrina*
 Stigma bilobed, glandular-pilosulous; calyx lobes serrate or denticulate, strongly pubescent on both sides; bracts small (not over 5 mm. long) or absent; leaves equal at base, not auriculate or amplexicaul. Style glandular-pilosulous throughout; corolla lobes hairy within.
 Stems strigose; leaves glabrous above, strigose beneath, red over whole lower surface; filaments glabrous throughout; corolla yellow.....*C. rubra*
 Stems densely long-hirsute; leaves hirsute on both sides, not red or red-spotted beneath; filaments glandular toward base; corolla red.....*C. hirsutissima*

COLUMNEA silvarum Morton, sp. nov. Herba vel frutex, 0.6–3.6 m. altus; caules crassi, articulati, dense rubro-hispidi; folia per paria inaequalia, subsessilia, petiolo crasso, ca. 2 mm. longo; lamina foliorum majorum oblonga, usque ad 16 cm. longa et 5.5 cm. lata, breviter et abrupte acuminata, basi valde inaequalis et obliqua, non auriculata, non amplexicaulis, herbacea, glanduloso-denticulata, non rubro-maculata, utrinque viridis, pilosula, subtus in venis hirsuta, venis lateralibus ca. 10-jugis, prominulis; folia minora stipuliformia, lanceolata, ca. 1 cm. longa, 4 mm. lata, acuminata, basi obliqua, viridia; inflorescentia axillaris, 2- vel 3-flora, bracteis basalibus lineari-subulatis, ca. 8 mm. longis, 1 mm. latis, integris,

pedicellis 1.5–2.5 cm. longis, gracilibus, dense rubro-hirsutis; calycis lobi lineari-subulati, subaequales, 2–2.5 cm. longi, ca. 3 mm. basi lati, longissime acuminati, remote laciniati (dentibus subulatis, ca. 2 mm. longis, ca. 3 utroque latere), utrinque rubro-hirsuti; corolla lutea (lobis basi purpureis), in calyce erecta, 4–4.5 cm. longa, basi subcalcarata (3 mm.), tubo supra basim contracto et 4 mm. diam., tubuloso, sursum ampliato et paullo ventricosus, 1 cm. diam., fauce contracto et 7 mm. lato, externe parce piloso, intus basi pilosulo, limbo subregulari, non bilabiato, ca. 1 cm. lato, lobis patentibus, suborbiculatis, ca. 3 mm. longis, rotundatis, 2 superioribus altius connatis, intus glabris; filamenta basi in tubum 5 mm. longum postice fissum connata, glabra; antherae exsertae, cohaerentes, quadratae, ca. 2 mm. longae et latae; ovarium sericeum; stylus glaber; stigma breviter bilobum, parce glanduloso-pilosulum; disci glandula postica solum evoluta, crassa, glabra, bidenticulata.—DARIEN: in rain forest on the crest of the Cana-Cuasi Trail, Chepigana District, alt. 1500 m., Mar. 15, 1940, *M. E. and R. A. Terry 1566* (Herb. Field Mus., no. 1,035,998, TYPE). A second specimen in the Field Museum was collected near the same locality at 600 meters elevation, Mar. 11, 1940, *Terry & Terry 1499*.

This species and *C. perpulchra* differ strongly from other Panama species of the section *Collandra* in their elongate corollas, about twice as long as the calyces. In the other species the corolla is included in the calyx or is only very slightly exserted.

DRYMONIA ALLOPLECTOIDES Hanst. var. **vallicola** Morton, var. nov. A var. *typica* foliis minoribus, calycis lobis angustioribus, minus hirsutis, corolla minus obliqua, minus hirsuta, limbo minus obliquo differt.—COCLÉ: north rim of El Valle de Anton, near Cerro Turega, alt. 650–700 m., June 30, 1940, *R. E. Woodson & R. W. Schery 203* (U. S. Nat. Herb., no. 1,808,024, TYPE); same locality and date, *Woodson & Schery 162*.

The typical form of this species is confined to Costa Rica.

DRYMONIA brevipes Morton, sp. nov. Frutex epiphyticus, scandens, 3–5 m. longus, ramosus; rami teretes, glaberrimi, apicem versus ca. 4 mm. diam.; folia per paria paullo inaequalia, petiolata, petiolo foliorum majorum 1.5–2 cm. longo, glabro; lamina foliorum majorum anguste oblonga, 20–24 cm. longa, 4.7–6 cm. lata, acuminata, basi cuneata, aequalis, coriacea, integra, utrinque glaberrima, viridis, non rubro-maculata, venis lateralibus supra obscuris, sub-

tus elevatis; folia minora similia, sed ca. 9.5 cm. longa et 3 cm. lata; flores solitarii, axillares, brevipedunculati, pedunculo ca. 13 mm. longo, glabro, apice incrassato; calyx verisimiliter coloratus, valde obliquus, lobis 3, valde inaequalibus, lateralibus late ovatis, ca. 2.4 cm. longis, 2.2 cm. latis, apice bilobatis (ca. 4 mm.), lobo postico fere libero, multo minore, ovato-lanceolato, ca. 18 mm. longo, 12 mm. lato, obtuso, omnibus glaberrimis; corolla rosea, ca. 7 cm. longa, in calyce obliqua, basi obtuse calcarata (6 mm.), tubo supra basim 11 mm. lato, gradatim ampliato, non ventricosus, fauce ca. 13 mm. lato, utrinque glaberrimo, limbo subregulari, ca. 3.5 cm. lato, paullo obliquo, lobis patentibus, subaequalibus, suborbiculatis, ca. 13 mm. longis, rotundatis, subintegris, non fimbriatis; filamenta basi in tubum 9 mm. longum crassum postice fissum connata, glabra, contorta; antherae connatae, inclusae, oblongae, ca. 6.5 mm. longae, 2 mm. latae; ovarium parce strigillosum; stylus glaber; stigma stomatomorphum; disci glandula postica solum evoluta, glabra, crassa, acuta.—COCLÉ: hills in vicinity of La Mesa, north of El Valle de Anton, alt. 1000 m., Jan. 21, 1941, *Paul H. Allen 2330* (U. S. Nat. Herb., no. 1,806,119, TYPE).

Evidently a rather close relative of *Drymonia conchocalyx* Hanst. of Costa Rica, but with a quite different calyx. In *D. conchocalyx* the calyx is obviously 5-lobed, the 2 anterior lobes being connate high up. In *D. brevipes* the calyx is apparently 3-lobed, the 2 anterior lobes being only slightly connate, but each anterior lobe is almost wholly connate with a lateral lobe. In both species the posterior lobe is nearly free and much smaller than the others. *Drymonia brevipes* may be distinguished also by the very short, thick peduncles.

DRYMONIA LANCEOLATA (Hanst.) Morton, Field Mus. Publ. Bot. **18**: 1173. 1938.—In the 'Flora of Costa Rica,' I reported this species from Panama, but I do not now know on what basis. A definite record is: CHIRIQUÍ: Quebrada Velo, alt. 1800 m., July 8, 1940, *Woodson & Schery 268*.

DRYMONIA PARVIFLORA Hanst. *Linnaea* **34**: 352. 1865-66.—CHIRIQUÍ: vicinity of Bajo Mona and Quebrada Chiquero, alt. 1500 m., July 12, 1940, *Woodson & Schery 566*.

This distinctive species, which has the general appearance of the genus *Tussacia*, was originally collected at Candelaria, Costa Rica, by Hoffmann, and has since been known only from the type. The

specimen recently collected agrees perfectly with Hanstein's description.

DRYMONIA parvifolia Morton, sp. nov. Frutex parvus, epiphyticus; caules ca. 30 cm. longi, sulcati, glabri, apice ca. 4 mm. diam.; folia per paria aequalia, petiolata, petiolo 7–12 mm. longo, glabro, gracili; lamina foliorum lanceolata, 4–5.5 cm. longa, 1.3–2 cm. lata, obtuse acuminata, basi aequalis, cuneata, integra, papyracea, utrinque glaberrima, venis lateralibus 4- vel 5-jugis, subtus vix elevatis; inflorescentia axillaris, uniflora, bracteis nullis, pedunculo ca. 9 mm. longo, glabro; calyx irregularis, lobis liberis, 2 anticis anguste oblongis, 11 mm. longis et 3 mm. latis, obtusis, 2 lateralibus ovato-lanceolatis, 13 mm. longis et 5 mm. latis, acutis, postico ovato-lanceolato, 8 mm. longo et 3 mm. lato, acuto, omnibus integris, glaberrimis; corolla alba, ca. 2.5 cm. longa, in calyce horizontalis, basi postice calcarata (1.5 mm.), tubo basi ca. 3 mm. lato, sursum ampliato et in fauce non contracto, ca. 1 cm. diam., externe glabro, limbo terminali, subbilabiato, lobis magnis, externe pilosis, laceratodentatis; filamenta glabra; antherae cohaerentes, inclusae, oblongae, sagittatae, ca. 3 mm. longae; ovarium apice sericeum; stylus glaber; disci glandula postica solum evoluta, bidenticulata, glabra, crassa.—CHIRIQUÍ: trail from San Felix to Cerro Flor, alt. 100–850 m., Aug. 13–14, 1939, *Paul H. Allen 1949* (Herb. Missouri Bot. Gard., TYPE).

This species is another of those intermediate between *Drymonia* and *Alloplectus* sect. *Erythranthus*. It is not closely related to any other species, being distinguished by its entirely glabrous stems, leaves and calyces, very small and strongly unequal calyx lobes, and white corollas.

DRYMONIA rosea Morton, sp. nov. Planta epiphytica, erecta; caules ca. 30 cm. longi, subtetragoni, crassi, ca. 1 cm. diam., vix strigillosi; folia per paria subaequalia, breviter petiolata, petiolo crasso, vix 1 cm. longo, dense rubro-sericeo; lamina foliorum oblique ovata vel oblonga, subfalcata, usque ad 22 cm. longa et 8.5 cm. lata, acuta, basi obliqua, rotundata, subchartacea, apicem versus serrulata, supra viridis, scabro-strigillosa, subtus ubique rosea, praecipue in venis strigillosa, venis lateralibus 8–10-jugis, venulis ultimis subtus valde prominulis, reticulatis; inflorescentia axillaris, uniflora, bracteis minutis, subulatis, pedicello ca. 7 mm. longo; calyx viridis, lobis inaequalibus, acutis, anterioribus et lateralibus oblongis, 2.5–2.8 cm. longis, 1 cm. latis, postico ovato, 2.2 cm. longo et

12 mm. lato, omnibus acriter dentatis (dentibus subulatis, ca. 1 mm. longis, ca. 8 utroque latere), utrinque strigillosis, pilis minutis, rubris, glanduliferis; corolla lutea, in calyce valde obliqua, basi postice calcarata (2 mm.), tubo ca. 3.2 cm. longo, supra basim ca. 5 mm. diam., sursum ampliato, non ventricosus, in fauce non contracto, ca. 13 mm. lato, externe rubro-pilosulo, intus basi dense glanduloso-pilosulo, limbo obliquo, paullo bilabiato, lobo antico majore, ca. 9 mm. longo et 10 mm. lato, lobis lateralibus ca. 9 mm. longis et 7 mm. latis, lobis posticis ca. 5 mm. longis et 10 mm. latis, omnibus breviter fimbriato-dentatis (dentibus ca. 0.5 mm. longis), intus glabris; filamenta basi in tubum 7 mm. longum postice fissum connata, glabra, vix contorta; antherae liberae, inclusae, oblanceolatae, ca. 5 mm. longae, basi ca. 1 mm. latae, apice ca. 2 mm. latae, basi sagittatae, basi solum dehiscentes; ovarium sericeum; stylus dense pilosulus, brevis, crassus; stigma stomatomorphum; disci glandula postica solum evoluta, magna, crassa, glabra, paullo emarginata.—COCLÉ: vicinity of La Mesa, hills north of El Valle de Anton, alt. 1000 m., May 11, 1941, *Paul H. Allen 2489* (U. S. Nat. Herb., nos. 1,808,619–20, TYPE).

Perhaps related to *D. marmorata* Hook. and *D. turrialbae* Hanst., which also have leaves deep rose color beneath, but in these species the calyx lobes are entire or inconspicuously and irregularly crenulate; in *D. rosea* the calyx lobes are sharply and deeply subulate-toothed. In *D. rosea* the ultimate veinlets are elevated and very prominent beneath, giving a reticulation suggesting that of some genus of Rubiaceae such as *Sommeria*. I have never seen any similar venation in the Gesneriaceae.

DRYMONIA TURRIALBAE Hanst. *Linnaea* **34**: 359. 1865–66.—In the 'Flora of Costa Rica' I reported this from Panama. The record on which this was based is *Pittier 5671* from Cerro de Garagará, Sambú Basin, Darien, alt. 500–974 m., Feb. 7, 1912. I have also examined another specimen in the Field Museum, *Terry & Terry 1421*, collected on the Cana-Cuasi Trail, Chepigana District, Darien, alt. 1200 m., Mar. 9, 1940. Neither of these collections has flowers in good condition for study, so it is possible that this Darien plant is different from the Costa Rican species.

GLOXINIA PALLIDIFLORA Hook.—CANAL ZONE: on large boulders in bed of waterfall, Government Forest Preserve, Madden Road, alt. 50 m., Nov. 29, 1940, *Paul H. Allen 2280*. Not previously collected wild in Panama.

MONOPYLE panamensis Morton, sp. nov. Herba terrestris; caules non ramosi, usque ad 70 cm. longi, puberuli; folia per paria inaequalia, longe petiolata, petiolo foliorum majorum usque ad 3.8 cm. longo, pilosulo; lamina foliorum majorum elliptica vel anguste elliptica, usque ad 20 cm. longa et 8.2 cm. lata, acuminata, basi valde obliqua, rotundata, tenuiter herbacea, grosse dentata, supra hirsutula, subtus puberula, venis lateralibus ca. 11-jugis, subtus prominulis; folia minora brevius petiolata, similia sed multo minor, ca. 4 cm. longa; inflorescentia terminalis, paniculata, 6–18 cm. longa, pedunculo communi 3.5–9 cm. longo, pilosulo, eglanduloso, apice bibracteato (bracteis subfoliaceis, viridibus, petiolatis), inflorescentiae ramis primariis brevissimis, usque ad 7 mm. longis, apice bibracteolatis (bracteolis subulatis, flavo-pilosulis), pedicellis 2–4, terminalibus, subumbellatis, inaequalibus, 2–22 mm. longis; calycis tubus cylindricus, ad anthesin ca. 5 mm. longus et 2 mm. latus, basi vix curvatus, ubique dense glanduloso-pilosulus; calycis lobi virides, oblongi, ca. 5 mm. longi et 1.5 mm. lati, obtusi, integri, crassi, externe pilosuli, intus apicem versus pilosuli, non recurvati; corolla basi alba, sursum caerulea, 1.2–1.6 cm. longa, late campanulata, in calyce obliqua, basi ecalcarata, non gibbosa, tubo basi ca. 4 mm. diam., sursum 11–13 mm. diam., externe pilosulo, intus glabro, limbo subregulari, ca. 1.7 cm. diam., lobis latis, rotundatis, intus glabris; filamenta libera, glabra; antherae cohaerentes, inclusae, ca. 1.5 mm. longae, loculis discretis, subdivergentibus; ovarium fere omnino inferum, pars libera conica, pilosula; stylus glaber; stigma stomatomorphum, glabrum; discus nullus; fructus capsularis, ca. 1.5 cm. longus, 3 mm. latus.—PANAMÁ: Cerro Campana, alt. 1000 m., Apr. 21, 1941, *Paul H. Allen 2413* (U. S. Nat. Herb., no. 1,793,920, TYPE); same locality, July 1, 1939, *Allen 1871*.

Related to *Monopyle puberula* Morton, of Costa Rica and Guatemala, but differing as follows:

Leaves long-petiolate (1.5–3.8 cm.); inflorescence (rachis, pedicels and calyx tube)	
densely glandular-pilosulous; calyx and lobes hairy within; corolla 1.2–1.6 cm.	
long; stigma glabrous.....	<i>M. panamensis</i>
Leaves short-petiolate (about 5 mm.); inflorescence eglandular-pilosulous; calyx and	
lobes glabrous within; corolla 2–2.8 cm. long; stigma pilose.....	<i>M. puberula</i>

Monopyle Maxonii is related also, but differs as follows:

Inflorescence branches and pedicels glabrate; hairs of calyx tube with elongate,	
uncinate gland; calyx lobes red-purple, recurved at tip, glabrous within; lower	
leaf surface glabrous; corolla usually 2–3 cm. long; stigma pilose.....	<i>M. Maxonii</i>
Inflorescence branches densely pilosulous; hairs of calyx tube with small, capitate	
gland; calyx lobes green, not recurved, hairy within; lower leaf surface strigose-	
puberulous; corolla 1.2–1.6 cm. long; stigma glabrous.....	<i>M. panamensis</i>