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**New Hawaiian Species of Clermontia, Including a
Revision of the Clermontia grandiflora Group
Hawaiian Plant Studies 6¹**

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Some of the most beautiful and striking of the Hawaiian endemic plants are members of the Lobeliaceae. They have been critically studied and beautifully illustrated by J. F. Rock [B. P. Bishop Mus., Mem. 7 (2):1-394, 1919]. Later collecting has added many more undescribed species. This paper describes new species related to *Clermontia grandiflora* Gaud. and *C. Samuelii* Forbes.

The specimens cited and the new types are all in the herbarium of Bernice P. Bishop Museum, Honolulu. The following symbols are used in the citation of specimens examined:

b.=buds	i.=immature
fl.=flowers	m.=mature
fr.=fruit	s.=sterile

The flowers of these species are arcuate or curved, but to varying degrees. Previous authors have recognized this but have described the flowers simply as strongly or not so strongly curved. In this study it was found much more satisfactory to measure the angle and to express it in degrees. A protractor was placed with its base along the median axis of the ovary, then the median axis of the open corolla tip was noted and its angular divergence read from the protractor. Extremes were obtained by measuring several flowers.

¹This is the sixth of a series of papers designed to present descriptions, revisions, and records of Hawaiian plants. The preceding papers have been published as B. P. Bishop Mus., Occ. Papers 10 (4), 1933; 10 (12), 1934; 11 (14), 1935; 12 (8), 1936; 14 (8), 1938.

SPECIES RELATED TO CLERMONTIA GRANDIFLORA

KEY

- Herbage generally or somewhat pubescent,
 Flower moderately curved, tip at 40° to 60° from base; calyx from 2/3 to 3/4 length of corolla,
 Twigs, peduncles, petioles and veins beneath appressed hispidulous; blades oblanceolate, firm chartaceous.....1. *C. grandiflora*
 Petioles and base of blade and midrib beneath, appressed puberulous but early glabrate; blade linear-oblanceolate, chartaceous.....
4a. *C. reticulata* f. *pilifera*
 Flower strongly curved, tip at 70° to 100° from base; calyx nearly equaling corolla,
 Petioles and twigs glabrous.....3. *C. hirsutinervis*
 Petioles and twigs appressed hispidulous.....2. *C. Forbesii*
 Herbage glabrous,
 Leaves subsessile; flower tip at 100° to 140° from base,
 Blades oblanceolate.....7. *C. subpetiolata*
 Blades obovate, the base cuneate.....8. *C. wailauensis*
 Leaves distinctly petioled, petioles 7-45 mm. long; flower tip at 50° to 100° from base,
 Blades smooth and plane above, linear-oblanceolate, acuminate.....
6. *C. molokaiensis*
 Blades reticulate above, elliptic to oblanceolate, obtuse or merely acute at tip,
 Blades elliptic or elliptic-oblanceolate; calyx 3/4 to 4/5 length of corolla.....4. *C. reticulata*
 Blades oblanceolate; calyx quite or nearly equaling corolla.....5. *C. Munroi*

1. *Clermontia grandiflora* Gaud., *Voy. Uranie et Physicienne, Bot.*, 459, 1826; l.c., *Bot. Planches*, pl. 73, 1826. Rock, B. P. Bishop *Mus. Mem.* 7(2) : pl. 186, 1919.

Description emended by H. St. John.

Stature unknown; branches woody, stout, the young branches appressed hispidulous, finally glabrate when old after the fall of the leaves, young growth short so that the leaves are approximate; petioles 5-25 mm. long, medium or stout, appressed hispidulous; blades 4-10 cm. long, 18-35 mm. wide, oblanceolate or linear-oblanceolate, subacuminate, subcoriaceous, crenate from the middle to the apex, the cuneate base entire, upper surface glabrous, the lower appressed hispidulous, especially on the midrib and veins; peduncles 2-5.5 cm. long, moderately stout, ascending or divergent, or at length more or less decurved, bracteate towards the tip, appressed puberulent, 1-2-flowered; pedicels 30-45 mm. long, appressed puberulent and several bracted towards the base, glabrous towards the apex; flowers glabrous, apparently greenish; hypanthium 10-12 mm. long, turbinate; calyx 3.5-4.5 cm. long, the tube 13-17 mm. in diameter, the oblong-linear, acute lobes about as long as the tube, but the proximal lobe still deeper cleft; corolla 6-6.5 cm. long, arcuate, the tip recurved at from 40° to 50° from the median axis of the base, the linear, long tapering lobes thinner than the calyx, cleft about 1/6

way to the base on the distal side, proximal lobe separate nearly 1/2 way; staminal column with anthers 6.5 cm. long, arcuate; anthers 9-11 mm. long, the lower penicillate; berry about 2.5 cm. in diameter, globose, yellow; seeds about 0.6 mm. long, ovoid, somewhat compressed, brown, shining.

Type: Iles Sandwich, *Gaudichaud*.

Range: mountains of western Maui.

Specimens Examined: Maui: Puukukui, Aug. 1910, *J. F. Rock* 8193 (fl.); Mount Kukui [Puukukui], Sept. 25, 1916, *G. C. Munro* 432 (fl.), 619 (fl.); Puu Kukui, forest below summit, 1,500-1,600 m., Sept. 10, 1922, *C. Skottsberg* 747 (fl., fr.); edge of Honokawai, 4,200 ft., Aug. 1910, *J. F. Rock* 8193 (fl.).

Clermontia grandiflora as treated by Rock [B. P. Bishop Mus., Mem. 7(2): 326-331] was an aggregate of numerous collections from three islands—Maui, Lanai and Molokai. The plants are diverse in shape and size of leaf, peduncle, pedicels, and flowers and differ in vesture. The writer here divides these among several species. The original description by *Gaudichaud* is very brief, containing only seven descriptive words. Fortunately *Rock* gives a clear photograph of the type (loc. cit., pl. 186). It is obviously the same plant illustrated by *Gaudichaud* and apparently the same branch, but the artist who prepared *Gaudichaud*'s drawing represents the shoot as much longer and more leafy; the leaves all obovate, short acuminate, just like the two or three broadest on the type specimen, but broader than and dissimilar to most of the well developed leaves, the peduncle as lateral and 3-flowered, cut abruptly above the upper flower, as if even more flowered; and the pedicels only 1/3 the length of the flowers. *Gray* (*Am. Acad. Arts Sci., Proc.* 5: 150, 1862) has already indicated that "The flowers are evidently exaggerated on *Gaudichaud*'s plate." There is no doubt but that *C. grandiflora* *Gaud.* is the species with hispidulous twigs, short peduncles, subcoriaceous oblanceolate leaves, and large and moderately curved flowers, found in the mountains of western Maui.

Clermontia grandiflora *Gaud.* var. *a. brevifolia* *Gray* (*Am. Acad. Arts Sci., Proc.* 5: 150, 1862), is a typonym, hence an exact synonym of *C. grandiflora* *Gaud.*

Rock also cites as a synonym, *Delissea filigera* *Wawra* (*Flora* 31: 31, 1873) from Waihee, Kauai, but he enumerates no specimens from Kauai. I have two photographs of this type specimen from the Vienna herbarium, one taken by *Rock* himself. The specimen is in fruit only. Its narrow, elliptic leaves, and slender, elongate,

1-flowered peduncle are very unlike *C. grandiflora*, but without studying the actual specimen, I cannot suggest the family and genus to which it belongs.

Clermontia grandiflora var. *longifolia* Gray (Am. Acad. Arts Sci., Proc. 5: 150, 1862) is based on *C. grandiflora* H. and A. (not of Gaud.) which was merely a misidentification, without any description, and hence is invalid.

One collection from Maui, Honokahau, *Forbes 497 M*, is not classified here. It resembles *C. reticulata*, but the leaves are oblanceolate instead of elliptic and not all glabrous. It resembles *C. hirsutinervis*, but the leaves are not hirsute beneath. It resembles *C. subpetiolata*, but the leaves are distinctly petioled and the calyx is only 5/6 the length of the corolla. It is left undetermined.

2. *Clermontia Forbesii*, spec. nov. (pl. 1, *B*; fig. 1, *a*).

Ramis lignosis glabris, ramulis gracilibus adpressi-hispidulis, petiolis 5-20 mm. longis adpressi-hispidulis glabrisve, laminis 2.5-6.5 cm. longis, oblanceolatis chartaceis subcrenatis ad apicem, pedunculis 3-6 cm. longis 2-(vel 1-) floriferis, pedicellis 2.5-4 cm. longis adpressi-hispidulis ad basim, floribus glabris, calycibus 5.5-6.5 cm. longis lobis lineari-oblongis, corollis 6-7 cm. longis arcuatis lobis linearibus acutis, antheris 10-12 mm. longis.

Stature unknown; branches woody, fairly stout, yellowish or brownish, corky, glabrate; branchlets appressed hispidulous, slender, pubescence persisting on the branchlets for some distance below the leaves, the young growth elongating moderately, so that the leaves are not crowded; petioles 5-20 mm. long, slender, sparsely appressed hispidulous or glabrate; blades 2.5-6.5 cm. long, 1-2.2 cm. wide, oblanceolate, subentire below the middle, subcrenate above the middle, chartaceous, above rugulose, beneath paler and the midrib at first slightly appressed hispidulous but early glabrate; peduncles 3-6 cm. long, appressed hispidulous, slender, from ascending to recurved, bracteate toward the tip, 2-(or 1-) flowered; pedicels 2.5-4 cm. long, appressed hispidulous and bracted at the base, glabrous at apex; flowers glabrous, apparently greenish; hypanthium 6-8 mm. long, bowl shaped; calyx 5.6-7.3 cm. long, the tube 8-10 mm. in diameter, the linear-oblong, acute lobes about half as long as the tube, but on the proximal side finally cleft to the base; corolla 6-7.5 cm. long, strongly arcuate in a semicircle, the tip recurved at from 100° to 140° from the median axis of the base, the lobes linear, acute, cleft about 1/3 way to the base on the distal side, cleft 1/2 way or more on the proximal side; staminal column with anthers 6.5-7.5 cm. long, arcuate, glabrous; anthers 10-12 mm. long, the lower penicillate; fruit unknown.

Type: Molokai, mountains above Puu Kolekole, July 11, 1912, *C. N. Forbes 186. Mo* (fl.).

Range: eastern Molokai, south slope of the main range at 3,900 feet or higher.

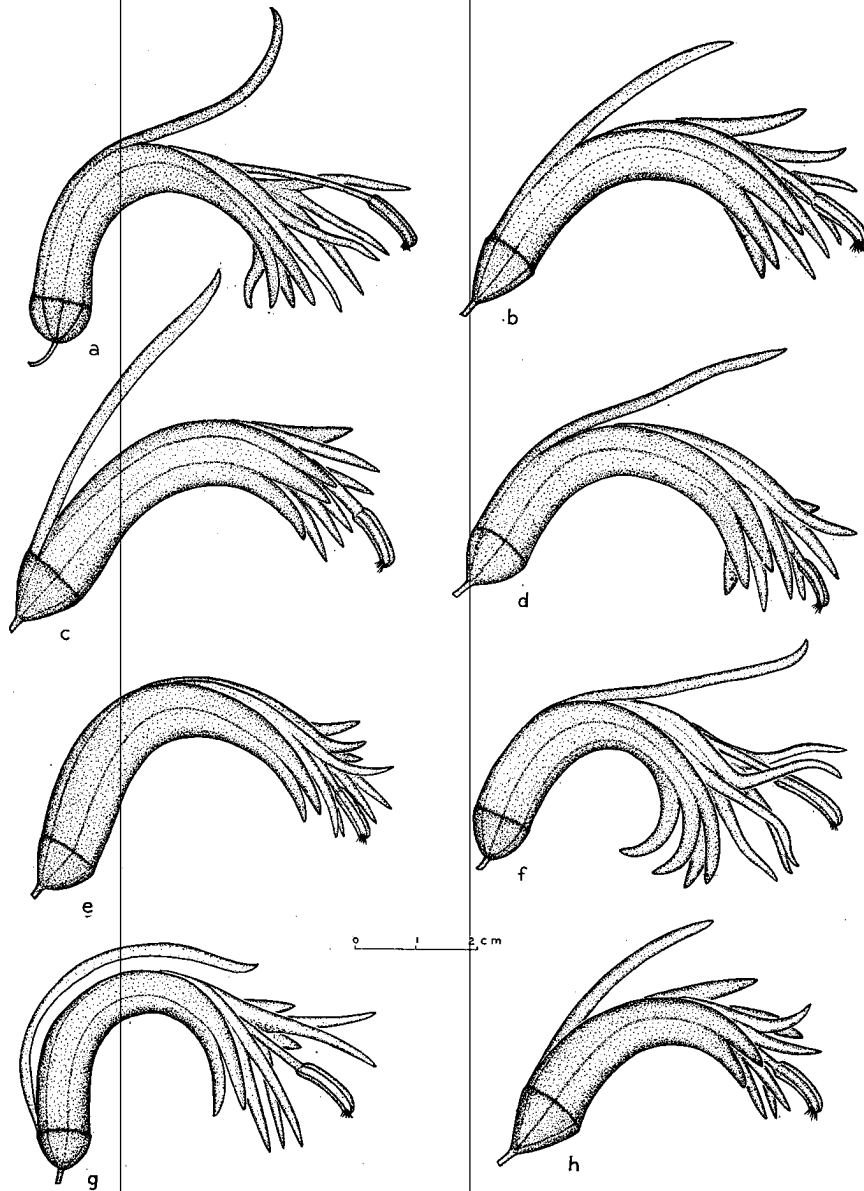


FIGURE 1.—Flowers of *Clermontia* species: a, *C. Forbesii*; b, *C. hirsutinervis*; c, *C. reticulata*; d, *C. Munroi*; e, *C. molokaiensis*; f, *C. subpetiolata*; g, *C. wailauensis*; h, *C. hanaensis*.

Specimens Examined: Molokai: see type; mountains above Puu Kolekole, July 17, 1912, *C. N. Forbes 254. M.* (fl.); waterfall below Kamoku, March 20, 1910, *J. F. Rock 6117* (b.).

The last specimen has smaller, thinner, and less prominently crenate blades. This condition is probably the result of its growing in a damp shady place, in a gorge below a waterfall.

This new species resembles the new *C. hirsutinervis*, but that has the twigs, petioles, and peduncles glabrous; the blades hirsute beneath on the veins; and the flowers curved at 70° to 100°.

3. *Clermontia hirsutinervis*, spec. nov. (pl. 2; fig. 1, b).

Arbor 2-2.5 m. alta, ramis validis pallide brunneis, ramulis glabris, petiolis 15-35 mm. longis gracilibus glabris, laminis 5-12 cm. longis elliptico-oblongatis chartaceis crenulatis supra rugosis glabris infra pallidioribus hirsutis, pedunculis 2.3-4.5 cm. longis glabris gracilibus 2-(vel 1-) floriferis, pedicellis 3-6 cm. longis glabris gracilibus pendentibus, calycibus 5.5-6 cm. longis lobis oblongo-linearibus acutis, corollis 6-6.5 cm. longis arcuatis lobis linearibus acuminatis, antheris 10-12 mm. longis.

Tree 2-2.5 m. tall; branches fairly stout, pale brownish, corky, glabrous; branchlets glabrous, the lateral ones often slender, the young growth elongating moderately so that leaves are not crowded; petioles 15-35 mm. long, slender, glabrous; blades 5-12 cm. long, 21-35 mm. wide, elliptic-oblongate, firm chartaceous, the margin crenulate except at base, above glabrous and the veins somewhat impressed rugose, paler below and white hirsute especially on the veins; peduncles 2.3-4.5 cm. long, glabrous, slender, spreading or arched recurving, bracteate towards the tip, 2-(or 1-) flowered; pedicels 3-6 cm. long, glabrous, slender, pendent; flowers glabrous, apparently whitish; hypanthium 10-13 mm. long, turbinate to obconic; calyx 5.5-6 cm. long, tube 8-10 mm. wide, only slightly shorter than the corolla, the oblong-linear acute lobes cleft 1/3 to 1/4 way to base, but the proximal one separate nearly or quite to the base; corolla 6-6.5 cm. long, curved or hooked at tip, tip at from 70° to 100° from the median axis of the base, the lobes linear, acuminate, cleft about 1/3 way to the base, but the proximal one cleft about 1/2 way; staminal column with anthers 6-7.5 cm. long, glabrous; anthers 10-12 mm. long, the lower penicillate; very immature fruit 13-15 mm. long, obconic, the upper rim of receptacle corky, flaring.

Type: Maui, east of Ukulele, trip to Keanae Valley, July 17, 1919, *C. N. Forbes 830. M.* (fl., i.fr.).

Range: eastern Maui, on the northern (windward) side at about 4,500-5,100 ft. elevation.

Specimens Examined: Maui: see type; water trail circuit below Ukulele Forest fence, Ukulele, July 25, 1919, *C. N. Forbes 929. M.* (fl.); east Maui, woods near Ukulele, above Olinda, small tree 6-8 feet, July 1910, *C. N. Forbes 156. M.* (fl.).

This species resembles most closely the original *C. grandiflora* Gaud., but that has the twigs, petioles, peduncles, pedicels, and the leaves on the lower surface toward the base appressed hispidulous, the calyx two-thirds to three-fourths the length of the corolla, the calyx tube 13-17 mm. wide, and the corolla curved at 40° to 50°.

4. *Clermontia reticulata*, spec. nov. (pl. 3; fig. 1, c).

Arbor glabra, ramis validis brunneis, petiolis 7-32 mm. longis, laminis 3.5-14 cm. longis ellipticis vel elliptici-oblancoelatis subcoriaceis cuneatis breve acuminatis vel obtusis supra rugosis infra pallide viridibus marginibus crenulatis, pedunculis 3-7 cm. longis divaricatis bracteatis 2-(1-) floriferis, pedicellis 2.5-7 cm. longis, calycibus 5-6 cm. longis 9-13 mm. latis, corollis 5.5-6.5 cm. longis curvatis lobis linearibus acutis, antheris 10-13 mm. longis, baccis 2 cm. diametro elliptici-globosis truncatis, seminibus 0.4-0.5 mm. longis ovalibus compressis lucidis.

Tree 2.2 m. tall, glabrous throughout; branches woody, the bark corky, smooth, pale brown; branchlets rather stout, the young growth elongating moderately so that the leaves are not or but little crowded; petioles 7-32 mm. long blades 3.5-14 cm. long, 15-45 mm. wide, elliptic or elliptic-oblancoelate, subcoriaceous (or firm chartaceous) bluntly short acuminate or obtuse, the base more or less cuneate, above impressed rugose reticulate, beneath paler green, the margin crenulate in the upper three quarters; peduncles 3-7 cm. long, spreading or arched recurving, at first bracteate towards the tip, 2-(or 1-) flowered; pedicels 2.5-7 cm. long, slender; flowers glabrous, apparently greenish; hypanthium 8-12 mm. long, obconic; calyx 5-6 cm. long, "bronze green", the tube 9-13 mm. wide, the lance-oblong lobes cleft 1/5 to 1/6 way to the base, but the proximal one separate nearly to the base; corolla 5.5-6.5 cm. long, curved, the tip at from 50° to 90° from the median axis of the base, the lobes linear, acute, cleft about 1/3 way to the base, more deeply so on the proximal side; staminal column "purple red", with the anthers 6.5-7.5 cm. long, anthers 10-13 mm. long, the lower penicillate; berry 2 cm. in diameter, elliptic-globose, truncate; seeds 0.4-0.5 mm. long, oval, somewhat flattened, dark amber colored, smooth and shining.

Type: Maui, beyond Waikamoi, 4,300 ft., East Maui, Sept. 1910, J. F. Rock 8503 (fl., fr.).

Range: eastern Maui, wet mountain forests.

Specimens Examined: Maui: see type; trail up west bank of Honomanu, June 23, 1920, C. N. Forbes 2583. M (b., fl.); Kipahulu Stream, Nov. 22, 1919, C. N. Forbes 1711. M (i. fr.); Kula pipe line, thick forest, 4,250 ft., Nov. 23, 1927, G. C. Munro 736 (fl.); Kula pipe line, Haleakala, 1,200 m., Oct. 18, 1922, C. Skottsberg 876 (fl.).

The closest relative appears to be *Clermontia Forbesii* which differs in having the stems and herbage appressed hispidulous, the blades 2.5-6.5 cm. long, oblanceolate, and the corolla 6-7 cm. long, curved at from 100° to 140°.

4a. *Clermontia reticulata* forma *pilifera*, forma nova.

A specie differt in petiolis laminis ad bases costis infra ab initio adpressi-puberulis, glabratis.

Similar to *Clermontia reticulata*, but differing in having at first the petioles, the base of the blade and the midrib beneath appressed puberulous, but soon glabrate.

Type: Maui, Nakalalua, calyx greenish, petals whitish, stamens violet, berry yellowish, oblong turbinate, truncate, thicket near crest, 4,500 ft., Feb. 6, 1930, *H. St. John 10237* (fl., i. fr.).

Range: western Maui, high mountains, in wet rain forest at 4,500 ft. or above.

Specimens Examined: Maui: see type, Puu Kukui [Puukukui], West Maui, Aug. 1910, *J. F. Rock and Hammond 8193* (i. fr.).

5. *Clermontia Munroi*, spec. nov. (pl. 1, *A*; fig. 1, *d*).

Frutex vel arbor 4-6 m. alta glabra, ramis validis pallide brunneis, petiolis 15-50 mm. longis, laminis 6-14 cm. longis oblanceolatis subcoriaceis acutis vel rare obtusis supra rugoso-reticulatis infra pallidioribus marginibus crenulatis subrevolutis, pedunculis 1.5-6 cm. longis at apicem bracteatis 2- (vel 1-) floriferis, pedicellis 25-55 mm. longis gracilis, floribus glabris pallide viridibus vel purpureo-tinctis, calycibus 4.5-6.5 cm. longis viridibus corollis subaequantibus, segmentis corollae linearibus acutis, antheris 10-13 mm. longis purpureis, fructibus incognitis.

Shrub or tree, 4-6 m. tall, with a broad, rounded top and spreading or arching branches; plant glabrous; bark pale brown, smooth, with protruding leaf-scars; branches woody, stout, the young growth elongating moderately so that the leaves are not or but little crowded; petioles 15-50 mm. long; blades 6-14 cm. long, 18-36 mm. wide, oblanceolate, subcoriaceous or firm chartaceous, acute or rarely obtuse, above impressed rugose reticulate, beneath paler green and occasionally with a few remote pilose hairs but early glabrate, the margin crenulate in the upper three-quarters, somewhat revolute; peduncles 1.5-6 cm. long, ascending or spreading or recurving, at first bracteate near the tip, 2- (or 1-) flowered; pedicels 25-55 mm. long, slender; flowers glabrous, pale greenish or green, sometimes purplish tinged at base; hypanthium 8-12 mm. long, obconic or turbinate; calyx 4.5-6.5 cm. long, green, the tube 8-14 mm. wide, the oblong, acute lobes cleft 1/5 to 1/10 way to the base, but the proximal becoming separate nearly to the base; corolla 6-7 cm. long, curved, the tip at from 60° to 100° from the median axis of the base, the lobes linear, acute, cleft about 1/3 way to the base, more deeply so on the proximal side; staminal column rose-purple, with anthers 6.5-8.5 cm. long; anthers 10-13 mm. long, violet-purple, the lower penicillate; fruit unknown.

Type: Lanai, Lanaihale, Palawai, 4 m. shrub, flowers green, divergent or pendent, moist woods, 3,500 ft. alt., Apr. 15, 1938, *H. St. John and E. Y. Hosaka 18867* (b., fl.).

Range: Lanai, moist woods, alt. 2,600-3,500 ft., on the mountain ridge from Kaiholena near Koele to Haalelepaakai; also on western Maui in Olowalu Valley.

Specimens Examined: Lanai: see type; mountains near Koele, June 1913, *C. N. Forbes 41. L* (b., fl.); Halelepakai [Haalelepaakai], Oct. 13, 1913, *G. C. Munro 157* (fl.); Kaiholena, Nov. 3, 1913, *G. C. Munro* (fl.); "Oha wai," Kaiholena, April 20, 1914, *G. C. Munro 138* (fl.); Kaiholena, April 20, 1914, *G. C. Munro 402* (b., fl.); Kaiholena, April 20, 1914, *G. C. Munro* (fl.); "Oha wai," Lanaihale, Oct. 14, 1913, *G. C. Munro 25* (fl.); Lanaihale, June 24, 1915, *G. C. Munro 442* (fl.); Lanaihale, Oct. 14, 1913, *G. C. Munro* (fl.); Lanaihale, July 1910, *J. F. Rock 8018* (fl.); Mahana Valley, July 22, 1910, *J. F. Rock 8018* (fl.); Kaiholena-Hookio divide, Kalulu, 6 m. tree, flowers pale greenish, staminal column rose-purple, low forest on moist ridge, alt. 2,600 ft., April 9, 1938, *H. St. John and A. J. Eames 18723* (b., fl.).

Maui: Olowalu Valley, May 17, 1920, *C. N. Forbes 2398. M* (fl.).

The most closely related species seems to be *Clermontia reticulata* of eastern Maui, which has the petioles 7-32 mm. long; blades 15-45 mm. wide, elliptic or oblanceolate; peduncles 3-7 cm. long; pedicels 2.5-7 cm. long; and the corolla 5.5-6.5 cm. long, curved, the tip at from 50° to 90° from the median axis of the base.

This new species is named for George C. Munro, long a resident of Lanai, who made extensive and long-continued explorations of its flora.

6. *Clermontia molokaiensis*, spec. nov. (pl. 4; fig. 1, e).

Planta glabra, ramis lignosis validis, foliis remotis, petiolis 12-30 mm. longis, laminis 7-13 cm. longis lineari-oblanceolatis acuminatis chartaceis crenatis, pedunculis 7-12 cm. longis gracilibus divergentibus recurvatisve bracteatis 2-(vel 1-) floriferis, pedicellis 28-32 mm. longis bibracteatis, floribus glabris, calycibus 5.8-6.5 cm. longis, corollis 6-7 mm. longis curvatis lobis linearibus acutis, antheris 11 mm. longis, fructibus incognitis.

Stature unknown; plant glabrous; branches woody, bark pale brown, smooth, with prominent, paler leaf-scars; branchlets rather stout, elongating so that the leaves are remote; petioles 12-30 mm. long; blades 7-13 cm. long, 25-40 mm. wide, linear-oblanceolate, acuminate, chartaceous, plane and smooth, not impressed rugose, above dark green, beneath paler green, the margin crenate in the upper two thirds; peduncles 7-12 cm. long, slender, spreading or drooping, bracteate towards the tip, 2-(or 1-) flowered; pedicels 28-32 mm. long, bibracteolate, slender; flowers glabrous, apparently greenish; hypanthium 7-9 mm. high, low turbinate; calyx 5.8-6.5 cm. long, the tube 10-12 mm. wide, the linear, acute lobes cleft 1/5 to 1/3 way to the base, but the proximal one separate nearly to the base; corolla 6-7 mm. long, curved, the tip at

from 60° to 100° from the median axis of the base, the lobes linear, acute, cleft about 1/3 way to the base, more deeply cleft on the proximal side; staminal column with the anthers about 7-7.2 cm. long; anthers about 11 mm. long, the lower penicillate; fruit unknown.

Type: Molokai, Mapulehu, May 1915, *J. F. Rock 12781* (b., fl.).

Range: Molokai, mountains of eastern part.

Specimens Examined: Molokai: see type; Mapulehu, April 1910, *J. F. Rock 7068* (b.); heights back of Kamaloo [Kamalo], July 1870, *W. Hillebrand* (fl.), specimen in Berlin herbarium, photo published by Rock in Bishop Mus., Mem. 7 (2): pl. 187, 1919.

The closest relative seems to be *Clermontia Munroi*, which has the petioles 15-50 mm. long; blades 18-36 mm. wide, impressed rugose reticulate above, subcoriaceous or firm chartaceous; peduncles 1.5-6 cm. long; and the pedicels 25-55 mm. long. In contrast *C. molokaiensis* has the petioles 12-30 mm. long; blades 25-40 mm. wide, plane and smooth above, chartaceous; peduncles 7-12 cm. long; and the pedicels 28-32 mm. long.

7. *Clermontia subpetiolata*, spec. nov. (pl. 5, *A*; fig. 1, *f*).

Planta glabra, ramis lignosis, foliis approximatis, petiolis 2-5 mm. longis, laminis 6-9.5 cm. longis oblanceolatis acuminatis valide chartaceis rugosis subter albescentes sinuato-crenatis, pedunculis 4-4.5 cm. longis gracilibus pendentibus bracteatis 2- (vel 1-) floriferis, pedicellis 18-25 mm. longis, floribus glabris roseomagentis (?), calycibus 5.5-6.3 cm. longis, corollis 5.8-7 cm. longis curvatis lobis linearibus acuminatis, antheris 13-15 mm. longis, fructibus incognitis.

Stature unknown; plant glabrous; branches woody, bark pale brown, smooth, with prominent leaf-scars; branchlets rather stout, slow growing, so that the leaves are approximate in a plumelike mass; petioles 2-5 mm. long, blending with the decurrent blade base; blades 6-9.5 cm. long, 22-33 mm. wide, oblanceolate, acuminate, firm chartaceous, above dark green, shallowly impressed, rugose, beneath whitish, the margin coarsely sinuate-crenate above the middle; peduncles 4-4.5 cm. long, slender, pendent, bracteate towards the tip; 2- (or 1-) flowered; pedicels 18-25 mm. long, bracteate; flowers glabrous, apparently rose-magenta colored; hypanthium 6-9 mm. high, hemispheric; calyx 5.5-6.7 cm. long, the tube 9-12 mm. wide, the linear, acuminate lobes cleft 1/3 to 1/4 way to the base, but the proximal one separate nearly to the base; corolla 5.8-7 cm. long, curved, the tip at from 100° to 140° from the median axis of the base, the lobes linear, acuminate, cleft about 1/3 way to the base, more deeply cleft on the proximal side; staminal column with the anthers 7-7.3 cm. long; anthers 13-15 mm. long, the lower penicillate; fruit unknown.

Type: Molokai, flowers unusually brightly colored, Puniuohua, 2,500 ft., July 3, 1923, *G. C. Munro 529* (b., fl.).

Range: Molokai, mountains of eastern part, south slope.

Specimens Examined: Molokai: see type.

Maui: There is a specimen from western Maui, Honokahau drainage basin, 1917, *C. N. Forbes* 463. *M.*, which may be this species as it resembles it in general, but the leaves are smaller and thicker, crenulate and not sinuate, and the peduncle diverges stiffly. It bears only one half-grown bud, so it cannot be determined with certainty.

This species is apparently most closely related to *Clermontia wailauensis*, under which is given a statement of the contrasting characters.

8. *Clermontia wailauensis*, spec. nov. (pl. 6; fig. 1, *g*).

Frutex glaber 3.3 m. altus, ramis pallide brunneis, foliis approximatis, laminis sessilibus 3-9 cm. longis obovatis cuneatis valide chartaceis subteralbescens remote crenulatis, pedunculis 6 cm. longis recurvatis ebracteatis 5-floriferis, pedicellis 5-6 cm. longis pedentibus bracteolatis, floribus glabris purpureis, calycibus 5.5 cm. longis, corollis 7 cm. longis curvatis, antheris 12-13 mm. longis, fructibus ignotis.

Shrub 3.3 m. tall, glabrous; branches woody, pale brown, smooth, with rather prominent leaf-scars; branchlets rather slender, slow growing so that the few leaves are approximate in subterminal tufts; blades 3-9 cm. long, 7-43 mm. wide, sessile, obovate, somewhat cuneate below, obtuse or with a short triangular tip, firm chartaceous, above dark green, beneath whitish, the margin remotely crenulate above the lower third; peduncle 6 cm. long, decurved, naked, 5-flowered; pedicels 5-6 cm. long, slender, pendent, bracteolate; flowers glabrous, dark maroon-purple; hypanthium 6-7 mm. high, depressed turbinate; calyx 5.5 cm. long, the tube 8-10 mm. wide, the linear, acuminate lobes cleft nearly 1/3 way to the base, but the proximal one separate nearly to the base; corolla 7 cm. long, curved, the lobes at from 110° to 130° from the median axis of the base, the lobes linear, acuminate, cleft about 1/3 way to the base, more deeply cleft on the proximal side; filaments minutely pilosulous below the middle; staminal column with the anthers 7 cm. long; anthers 12-13 mm. long, the lower penicillate; fruit unknown.

Type: Molokai, Kukuinui Ridge, Wailau Valley, 10 ft. shrub, flowers dark maroon purple, much curved, peduncles pendent, moist woods, alt. 2,600 ft., July 4, 1933, *H. St. John, Jack Dunn, and W. B. Storey* 13269 (b., fl.).

Range: Molokai, moist woods, steep side of Wailau Valley on the north side of the eastern end of the island.

Specimens Examined: Molokai: known only from the type locality.

This species is related, but rather remotely, to *Clermontia subpetiolata* of Molokai, which has petioles 2-5 mm. long; blades 6-9.5 cm. long, 22-33 mm. wide, oblanceolate, rugose, the margin coarsely sinuate-crenate; peduncles 4-4.5 cm. long, bracteate, 2- (or 1-) flowered; and the pedicels 18-25 mm. long. *C. wailauensis* has no petioles; blades

3-9 cm. long, 7-43 mm. wide, obovate, not rugose, the margin remotely crenulate; peduncle 6 cm. long, naked, 5-flowered; and the pedicels 5-6 cm. long.

A NEW CLERMONTIA FROM MAUI

Clermontia hanaensis, spec. nov. (pl. 5, *B*; fig. 1, *h*).

Frutex 1.3-2 m. altus, ramis glabratis, ramulis puberulentis brevibus, foliis approximatis, petiolis 4-9 mm. longis, puberulentis, laminis 4.5-6 cm. longis firme chartaceis ovalibus subacuminatis obtusis rugulosis infra pallidis remote puberulentis, pedunculis 3-4 mm. longis adscendentibus puberulentis 2-floriferis, pedicellis 15 mm. longis rectis supra glabris, floribus albis vel viridescens, calycibus 3.8-4.3 cm. longis, corollis 5 cm. longis curvatis, antheris 11-12 mm. longis, baccis pyriformibus aurantibus.

Shrub 1.3-2 m. tall, loosely branched, branches glabrate, bark pale brown, with protruding, prominent leaf-scars; branchlets rather stout, slow growing so that the leaves are crowded near the tip, stiff puberulent; petioles 4-9 mm. long, puberulent; blades 4.5-6 cm. long, 25-30 mm. wide, firm chartaceous, oval, the apex short subacuminate, obtuse, above "bronze green", slightly rugose, beneath pale except for the darker veins, very sparsely puberulent on the veins and veinlets, the margin "red", crenate almost to the base; peduncle 3-4 mm. long, ascending, stiff, puberulent, 2-flowered; pedicels 15 mm. long, ascending, straight, bracteolate and puberulent at base, glabrous above; hypanthium 10-12 mm. high, slender turbinate; perianth glabrous; calyx 3.8-4.3 cm. long, the tube 8-10 mm. wide, "light green", the lanceolate lobes, "white or only slightly greenish", cleft 1/4 to 1/5 way to the base, but the proximal one separate nearly to the base; corolla 5 cm. long, curved, the lobes at 60° from the median axis of the base, the lobes linear, acuminate, "white or only slightly greenish", cleft about 1/3 way to the base, more deeply cleft on the proximal side; filaments minutely pilosulous within near the base; staminal column with the anthers 5.3-5.5 cm. long, "purple", curved; anthers 11-12 mm. long; berry "pear-shaped, orange."

Type: Maui, swamp above Puki, Hana, shrub 4-6 ft. high, 2,000-3,000 ft. alt., July 5, 1920, *C. M. Forbes 2679. M* (fl.).

Range: eastern Maui, known only from the type collection.

This species is most closely related to *Clermontia Samuelii* Forbes of eastern Maui, which has the branches densely purplish to brownish hirsutulous, the hairs long persistent; whitish hirsutulous throughout, densely so on the veins below; petioles 1.4-2.2 cm. long; blades 6.4-10 cm. long, oblanceolate, acute or subacuminate; flower a delicate purplish pink; calyx 3.5-4 cm. long; corolla 4-4.7 cm. long; staminal column with the anthers 4.4-4.8 cm. long. In contrast, *C. hanaensis* has the branchlets stiff puberulent, soon glabrate, the branches glabrous; petioles and veins of lower leaf surface sparsely puberulent, upper leaf surface glabrous; petioles 4-9 mm. long; blades 4.5-6 cm. long, oval,

the apex short subacuminate, obtuse; lobes of the perianth white or only slightly greenish; calyx 3.8-4.3 cm. long; staminal column with anthers 5.3-5.5 cm. long.

The field notebook left by Forbes, now available at the Bishop Museum herbarium, contains very full habitat and color notes on this species.



A

HAWAIIAN ISLANDS
 Oahu, Lanai
Clemontia Munroi S. P. Oakes
 4 m. above P. green, densest in forest,
 moist woods, 3500 ft. alt.
 Lanai, Palauai
 H. S. G. & E. V. H. 18, 167 April 15, 1912



B

Type
Clemontia Forbesii S. P. Oakes
 18, 167 May 1912

Plant Hawaiian.
 collected by S. P. Oakes on Oahu
Clemontia
 Herb. above Pan. Kelpala
 18, 167
 in 176 Year

PLATE 1.—A, *Clemontia Munroi*; B, *Clemontia Forbesii* (types).



PLATE 2.—*Clermontia hirsutinervis* (type).

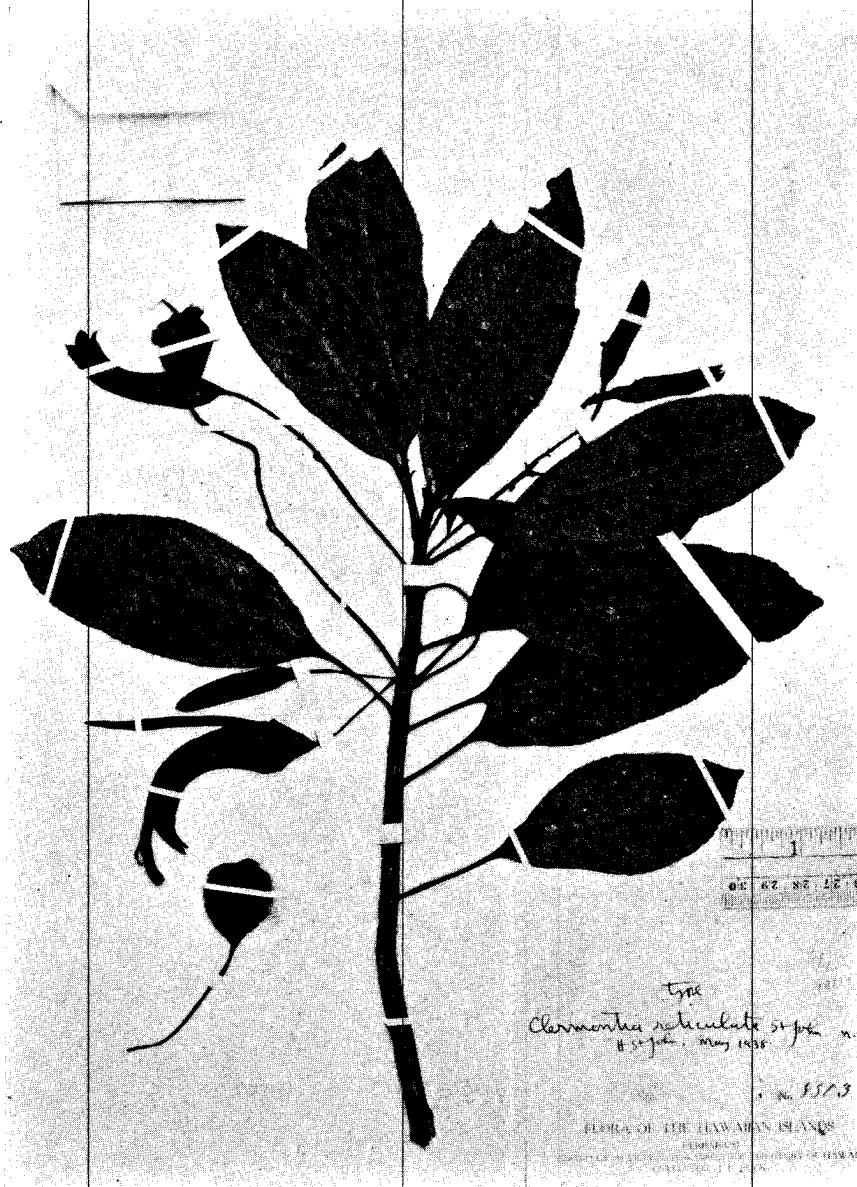


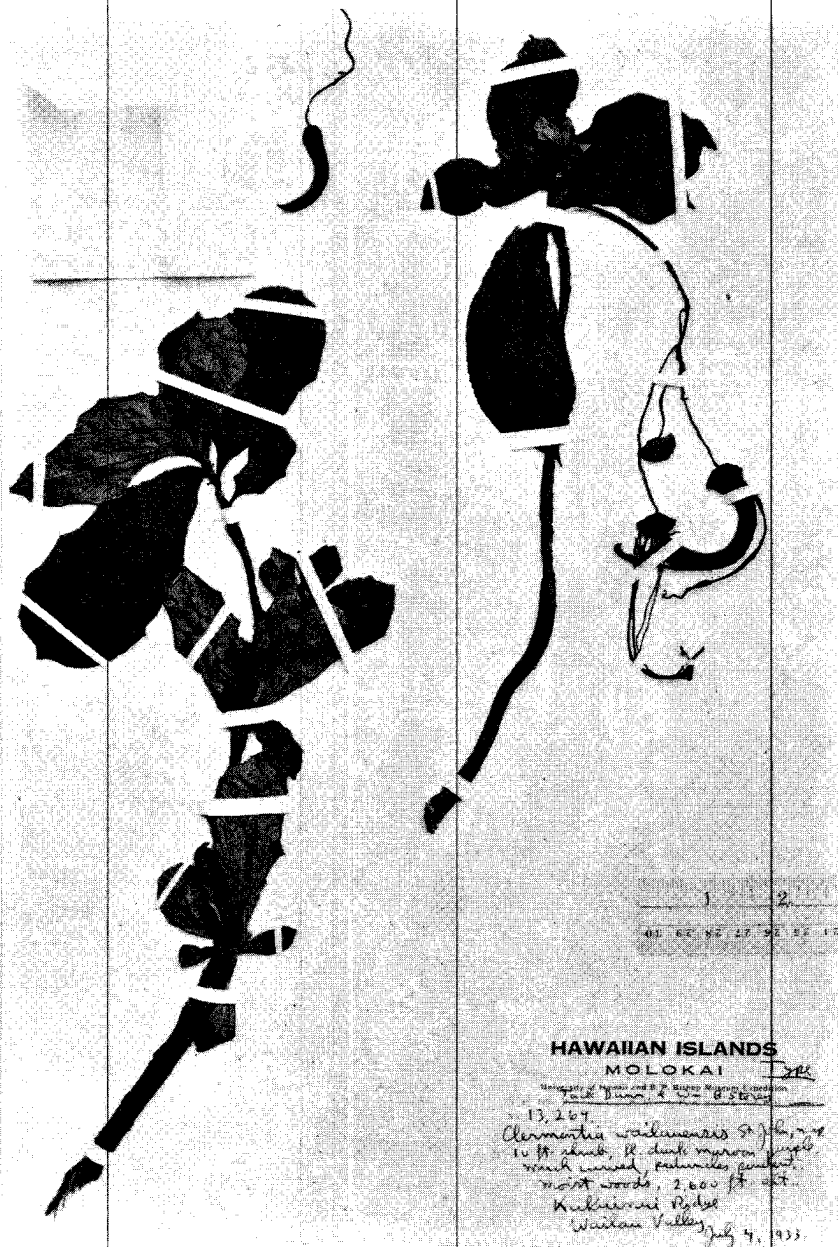
PLATE 3.—*Clermontia reticulata* (type).



PLATE 4.—*Clermontia molokaiensis* (type).



PLATE 5.—A, *Clermontia subpetiolata*; B, *Clermontia hanaensis* (types).



HAWAIIAN ISLANDS
MOLOKAI

13,264
Clermontia wailauensis St. John
10 ft. shrub, fl. dark magenta, purple
with inner, tubular part
moist woods, 2,000 ft. alt.
Kula Forest Reserve
Wailau Valley July 4, 1933.

PLATE 6.—*Clermontia wailauensis* (type).

