

VLADIMÍR KRAJINA:

Generis *Cheirodendrum* species hawaiienses ex affinitate *Cheirodendri platyphylli*.

(Cum adnotatione morphologica.)

Cheirodendrum platyphyllum SEEMAN, in *Journal of Botany* V, 236, 1867. — HILLEBRAND, *Flora of the Hawaiian Islands* 149, 1888. — HARMS in ENGLER et PRANTL, *Die natürl. Pflanzenfam.* III., Abt. 8, 48, 1898. — ROCK, *The Indigenous Trees of the Hawaiian Islands* 363, 1913 (p. p.).

Panax? *platyphyllum* HOOKER et WALKER-ARNOTT, *Botany of Captain Beechy's Voyage* 84, 1832. — ENDLICHER, *Bemerkungen über die Flora der Südsee-Inseln*, no. 1342, in *Annalen des Wiener Museums der Naturgeschichte* I., 1836. — DRAKE DEL CASTILLO, *Illustrationes florae insularum maris Pacifici* VI., 182 (1890).

Hedera platyphylla A. GRAY, *Botany of the United States Explor. Expedition under Captain Wilkes* 720, t. 91 (1854). — MANN, in *Proceed. of the Americ. Acad. of Arts and Sciences* VII., 168 (1867). — WAWRA, in *Flora* LVI., 157 (1873).

Tab. I. et IV. 1.

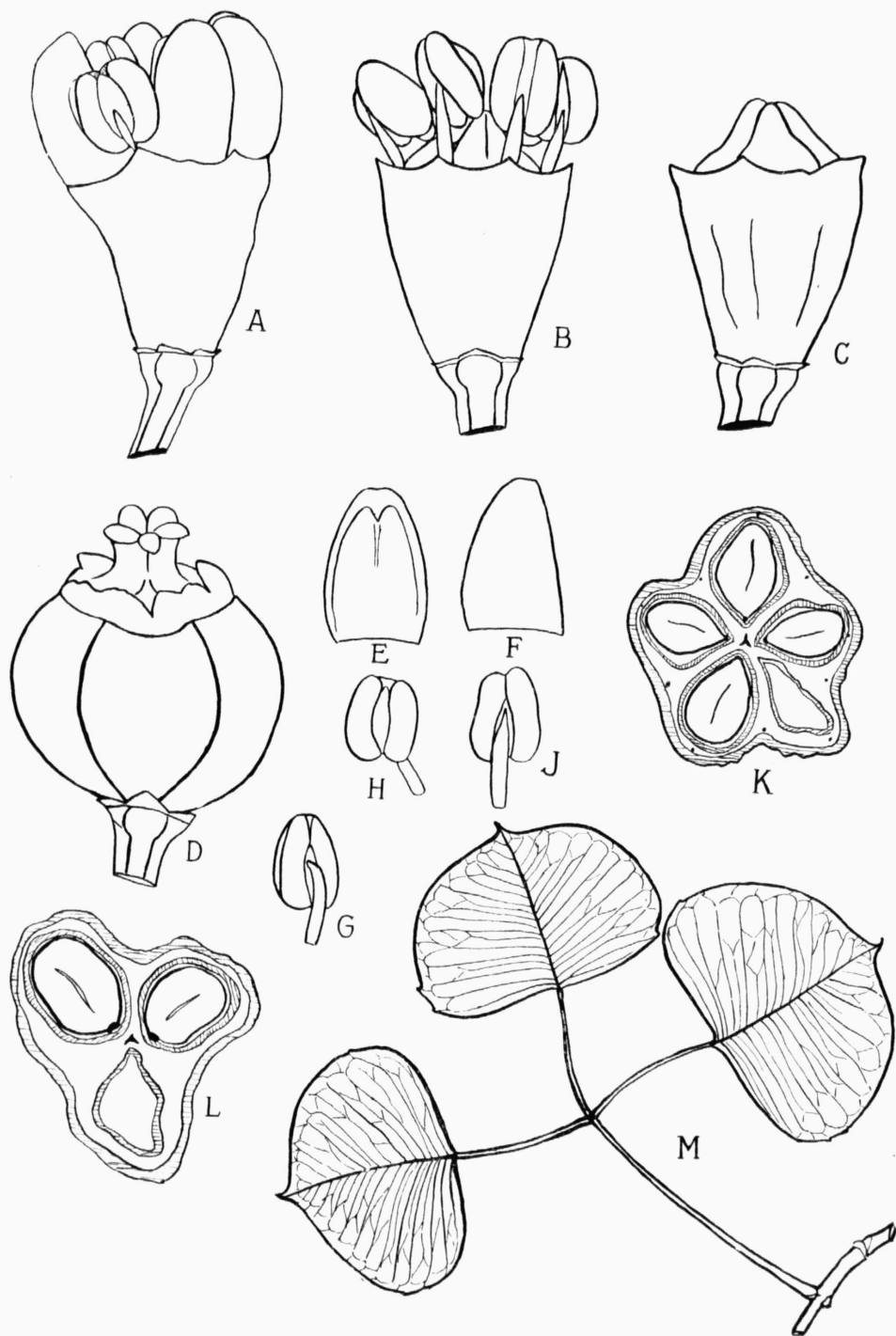
Arbor parva, circa 2.5 usque 6 m alta. Rami florigeri sicci 4—6 mm crassi, fragiles, resinati, juveniles viventes teretes, sicci profunde sulcati, glabri. Folia (*M*) decussata, ternata, longitudine aequilata vel latiora, rarius angustiora, flaccida, 14—24 cm longa, 16—24 cm lata. Petiolus (8.5—) 9—12 cm longus, glaber, basi incrassatus, siccus basi (2.5—) 3—4 mm crassus. Foliola longe petiolutata, petiolulis (3.5—) 4.5—6.5 mm longis, late reniformi-ovalia, (4.4—) 5.8—7.8 cm longa, (5.8—) 7.4—10.5 cm lata, a basi in $\frac{1}{7}$ — $\frac{1}{6}$ latissima, longitudine semper valde latiora, oblique truncata vel truncata, rarissime fere contracta, apice apiculata et uncinata, integerrima vel saepius disjuncte et imbecille serrulata, rarius parte basali uno vel duobus, paulo prominentibus dentibus armata, coriacea, sicca chartacea, margine incrassata, pallide flavoviridia, utraque parte fere unicolorata, superne sicca nitida, inferne opaca vel nitidula. Nervatio (*M*) pennata,

nervis brochidodromis. P a n i e u l a umbellifera, magna, latitudine longior, 10—16 cm longa, 9—12 cm lata, rara, 60—80-flora, ramis oppositis, fructiferis patentibus vel diffusis, rarius patentissimis; umbellula (3—) 5 (—8)-flora, pedicelli fructiferi (0·35—) 0·4—0·6 mm longi, sub flore calyculum (A—C) quinquedentatum dentibus vix 0·1 mm longis, posterius sub bacca (D) paulo extensis gerentes. Flores (A, B) magni, 7·3—7·6 mm longi. Calyx (C) 5—6-dentatus, abbreviatus, dentibus 0·4—0·5 mm longis. Corolla valvata, extus obscure viridi-fusca, intus pallida. Petala (E, F) 5—6, crassa, sicca impellucida, ovata, 3·3—3·5 mm longa, 1·8—2·4 mm lata, anthesi omnia ad basin sejuncta, apice cucullata, apiculata, apiculo 0·7—0·9 mm longo. Stamina (G—J) 5—6, 2·8—3 mm longa. Filamentum 1·5—1·8 mm longum, 0·2—0·25 mm crassum, anthera 1·8—2·1 mm longa, 1·4—1·7 mm lata. Ovarium (C) inferum 4·2—4·4 mm longum, basi 1·5 mm, superne 4·2—4·3 mm latum, (3—4—) 5-ovulatum. Stylopodium (C) anthesi 1·8 mm altum, supra calycis dentes valde prominens. Stylus (D) persistens, brevis, supra drupam 1·5—1·8 mm altus, in stylopodio sedens, stigmatibus (3—4—) 5—lobis, parum prominentibus, post anthesin adolescentibus. Drupa (D) fusca, carnosa, pyrenata, pyrenis (K, L) (3—4—) 5, tri- usque pentasperma, subglobosa, 5·3—7·3 mm longa, 4·7—6 mm lata, sicca (3—4—) 5-costata, vix rugosa, calycis dentibus persistentibus, sub lente acriore manifestis, erectis, exocarpio crassissimo.

Insula O a h u (solun!): montes Koolau, Konahuanui, in summo cacumine (locus classicus!), altitudine circa 930 m s. m., legi 29. XII. 1929 (fl., fr.); montes Waianae, Puu Kaala, in declivibus orientalibus sub cacumine, altitudine circa 1050 m s. m. (fl., fr.), et in summo cacumine, altitud. circa 1200 m s. m. (ster.), legi 24. XI. 1929.

Cl. H. WAWRA (Beiträge zur Flora der Hawai'schen Inseln, in Flora LVI., 157, 1873) locum natalem huius speciei non descripsit, nam plantam ex herbario a cl. Hillebrand vidit. Cl. WILL. HILLEBRAND (Flora of the Hawaiian Islands 149, 1888) *Cheirodendrum platyphyllum* »On the two highest peaks of Oahu, Konahuanui! and Kaala! 3000—4000 ft. above the sea«, ubi ipse hanc speciem inveni, cognovit. Cl. A. A. HELLER (Observations on the Ferns and Flowering Plants of the Hawaiian Islands, in Minnesota Botanical Studies I [Minn. Geol. and Nat. Hist. Survey Bul. 9] 869, 1897) plantam hanc etiam in insula Kauai legisse scripsit: »On the plateau above Waimea, Kauai, it is not uncommon, especially far back in the forest, where there is considerable moisture. Here it is a large tree, 25 to 30 feet high, but on the summit of Konahuanui is small and stunted«. Sed planta, a cl. HELLER in Kauai lecta, est species alia, nova, ut paulo inferius explicare velim. Etiam cl. J. F. ROCK (The Indigenous Trees of the Hawaiian Islands, 363, 1913) *Cheirodendrum platyphyllum* ex insula Kauai false attulit.

Exemplaria in montibus Waianae (Puu Kaala) lecta ab iis e Konahuanui, Koolau-montes, orientibus haud discrepant.



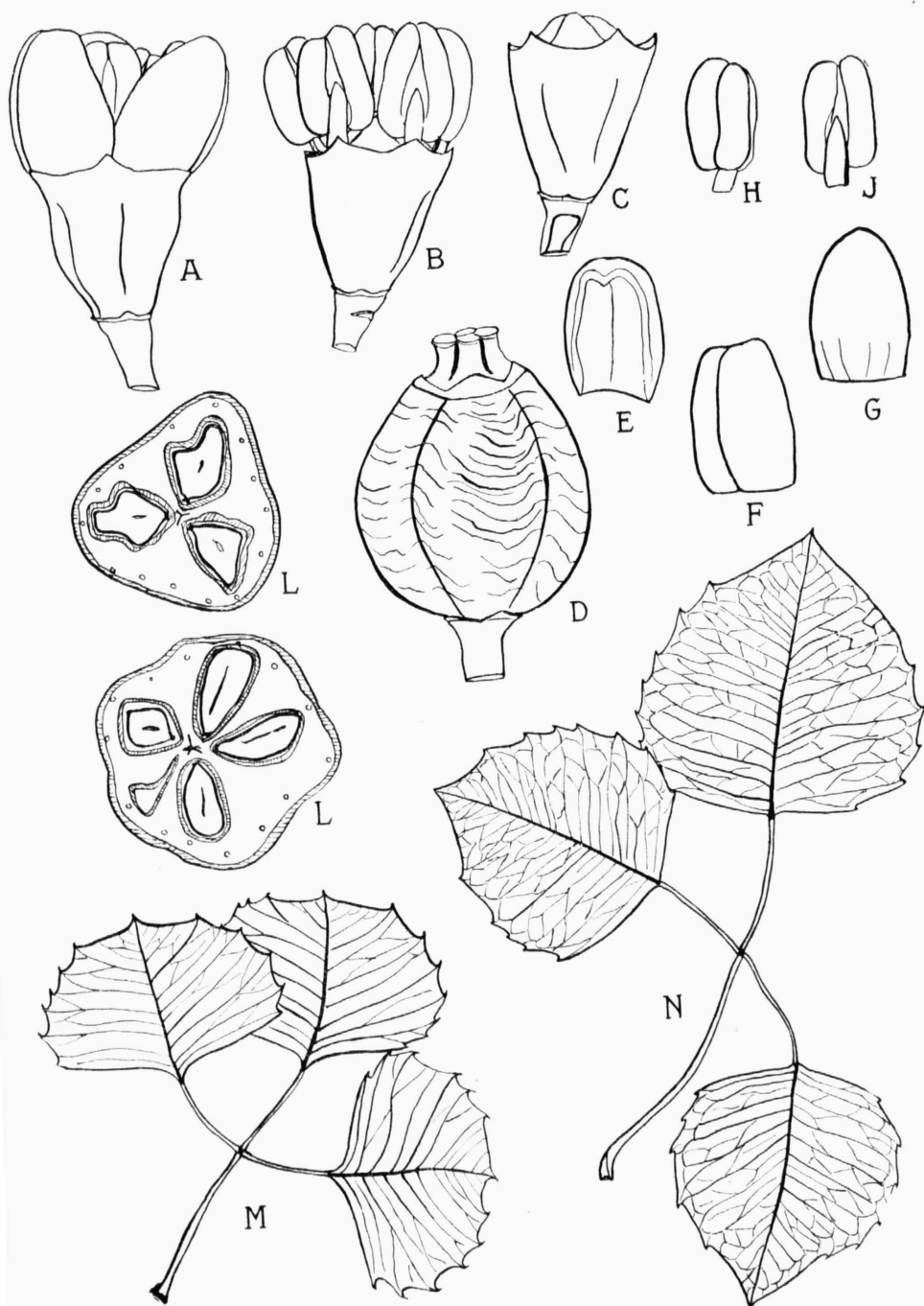
Cheirodendrum platyphyllum SEEMAN.

Cheirodendrum Dominii, species nova.

Tab. II. A—M et IV. 2.

Arbor parva, 3—7 m alta, rarius frutex usque solum 1.5 m altus. Rami floriferi sicci 2.5—4 mm crassi, fragiles, resinati, juveniles viventes teretes, sicci subtiliter sulcati, glabri, Folia (*M*) decussata, ternata, longitudine aequilata vel latiora, 12—17 cm longa, 14—21 cm lata, flaccida. Petiolus 6.5—8.5 cm longus, glaber, basi incrassatus, siccus basi 1.5—2.5 mm crassus. Foliola brevius petiolulata, petiolulis 2—3.5 (—4.2) cm longis, reniformi-ovalia, (2.5—) 3.5—5, rarius usque 6 cm longa, 4.5—6.5, rarius usque 7.5 cm lata, a basi in $\frac{1}{3}$ — $\frac{1}{2}$ latissima, basi truncata, rarius truncato-contracta, apice rotundato-vel saepius emarginato-apiculata, margine semper grosse et disjuncte dentata, dentibus uncinatis, tenuius coriacea, sicca chartacea, margine incrassata, vigerter viridia, superiore parte quam inferne distinctius obscuriora, sicca utraque parte fere opaca. Nervatio (*M*) pennata, nervis craspedodromis. Panicula umbellifera parva, longitudine aequilata usque latior, 4.7—9.5 cm longa, 6.3—10 cm lata, parum contracta, saepius rara, 40—70—flora, ramis oppositis, fructiferis patentibus vel diffusis, rarius patentissimis; umbellula (3—) 4—6 (—8)-flora, pedicelli fructiferi 0.3—0.6 mm longi. Calyculus (*A—C*) 4—5-dentatus, manifestus usque paene obsoletus, post anthesin (*D*) manifestior. Flores (*A, B*) minores, 6—6.7 mm longi. Calyx (*C*) quinquedentatus, abbreviatus, dentibus 0.5 mm longis. Corolla valvata, extus atropurpurea, intus virescens. Petala (*E—G*) 5, haud pellucida, late ovata vel elliptica, semper duobus petalorum geminibus in flore ita coalescentibus, ut flos fecte tribus petalis aperiatur, 3—3.1 mm longa, 1.9—2 mm lata, apice cucullata, apiculata, apiculo 0.6—0.7 mm longo. Stamina (*H, J*) 5, 2.5—2.7 mm longa. Filamentum 1.2—1.5 mm longum, 0.3—0.6 mm crassum, anthera 2.2—2.4 mm longa, 1.2—1.5 mm lata. Ovarium (*C*) inferum, 2.8—3.4 mm longum, basi 1.1 mm, superne 2.8—3.3 mm latum, 3 (—5)-ovulatum, Stylopodium (*C*) anthesi humile, 0.8 mm altum, supra calycis dentes parum prominens. Stylus (*D*) persistens, brevior, supra drupam 0.9—1.2 mm altus, in stylopodio sedens, stigmatibus post athesin adolescentibus, 3 (—4—5), haud prominentibus, plerumque occultis. Drupa (*D*) atropurpurea, carnosae, subglobosae, 5—5.3 mm longa, 4.6—4.8 mm lata, sicca 3 (—4—5)-costata, superficie grosse rugosa, calycis dentibus brevissimis, plus minusve adpressis persistentibus, pyrenata, 3 (—4—5)-sperma, pyrenis (*L, L*) 3 (—4—5), exocarpio crasso.

Insula K a u a i: in parte occidentali silvae paludosae Alakai swamp prope Kilohana, altitudine circa 1210 m s. m., legi (typus!) 14. II. 1930 (fr.); in parte orientali silvae paludosae Alakai swamp apud rivum Halekua, altitudine circa 1300 m s. m., legi 26. I. 1930 (fr.); apud Keaku Cave, altitudine circa 1350 m, legi 26. I. 1930 (fr.); in iugo occidentali montis Waialeale una cum *Metrosidero waialealae*, altitudine circa 1450 m (fr.), et in summo cacumine huius montis etiam in associatione cum *Metrosidero waialealae* ut frutex 2.5 usque 1.5 m altus, altitudine circa 1520 m s. m., legi 27. I. 1930 (fl.).



Cheirodendrum Domini KRAJINA (A-M).
Cheirodendrum wahiawense KRAJINA (N).

Speciei huic novae in honorem clarissimi Dr. CAROLI DOMIN, Universitatis Carolinae Pragensis professoris botanicae generalis ordinarii et de re botanica, praesertim in systematica, morphologia, geobotanica etiam in multis regionibus calidis optime merito, grato animo nomen dedi.

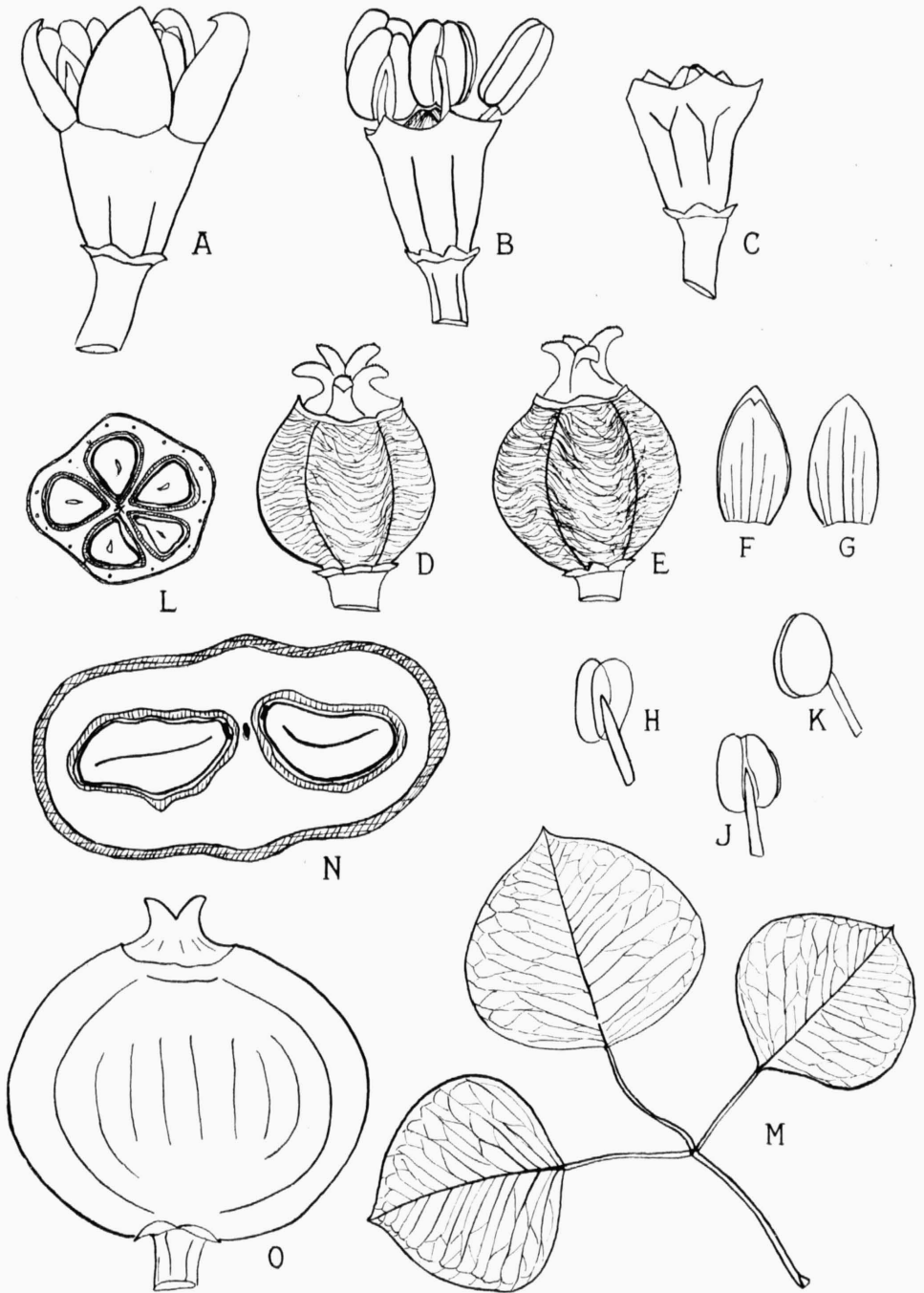
Cheirodendrum Dominii, *Cheirodendro platyphylo* affinis, ab hac specie multis notis gravioris pretii, praecipue ramis tenuioribus, foliis minoribus, foliolis grosse dentatis, nervis craspedodromis, nec brochidodromis, dein panicula parva, floribus minoribus, duobus geminibus petalorum coalescentibus, petalis paulo minoribus, extus atropurpureis, apiculo petalorum brevioris, staminibus brevioribus, stylopodio in flore humiliore, ovario valde minore, saepius tri-ovulato, stigmatibus haud prominentibus, plerumque occultis, drupa minore, atropurpurea, valde discrepat. Etiam a speciebus novis sequentibus multis characteribus bene differt.

Cl. J. F. ROCK plantam nostram certe in summo cacumine montis Waialeale et in aliis locis insulae Kauai legit, sed ut *Cheirodendron platyphyllum* determinavit. Nam (l. c.) etiam plantam foliolis »almost sinuate-dentate (Waialeale, Kauai, plants)« ut speciem *Ch. platyphyllum* attulit.

Cheirodendrum kauaiense, species nova.

Tab. III. *A—M* et V. 1.

Arbor amplior, 6—12 m alta. Rami floriferi sicci 3.5—5 mm crassi, fragiles, resinati, juveniles viventes teretes, sicci rugose sulcati, glabri. Folia (*M*) decussata, ternata, longitudine aequilata vel latiora, 14—27 cm longa, 14—27 cm lata, flaccida. Petiolus (5—) 6—12 cm longus, basi incrassatus, siccus basi 2.5—4 cm crassus. Foliola brevius petiolulata, petiolulis (2.5—) 3—4.5 cm longis, parum reniformi-ovalia vel -ovata, longitudine paulo latiora, rarius (var. *keakuensis*) paulo angustiora, (4.2—) 5—7 (—9) cm longa, (5—) 6—8.5 (—10.5) cm lata, a basi in ($\frac{1}{3}$ —) $\frac{1}{2}$ latissima, basi plus minusve contracta, rarissime fere truncata, apice obtuse apiculata vel fere rotundata, integerrima, coriacea, sicca chartacea, margine paulo crispula et incrassata, plus minusve obscure flavoviridia, superiore parte paulo obscuriora, sicca utraque parte opaca. Nervatio (*M*) pennata, nervis brochidodromis. Panicula umbellifera, magna, latitudine conspicue longior, 9—14.5 cm longa, 8—13 cm lata, contracta, densa, multiflora, (150—) 200—350-flora, ramis oppositis, fructiferis inferioribus saltem patentissimis; umbellula (4—) 5—6 (—7)-flora, pedicelli fructiferi 0.3—0.4 mm longi. Calyculus (*A—E*) quinquentatus, manifestissimus, dentibus 0.2—0.3 mm longis, membranaceis usque pae-ne scariosis, patentibus. Flores (*A, B*) minimi, 5.6—5.8 mm longi. Calyx (*C*) quinque-dentatus, brevissimus, dentibus 0.2—0.3 mm longis. Corolla valvata, extus obscure fusca, intus virescens. Petala (*F, G*) parum pellucida, extus sulcata, elliptico-ovata, anthesi omnia usque ad basin sejuncta, apice minus cucullata, apiculata, apiculo brevi, 0.2—0.4 mm longo. Stamina (*H—K*) quinque, 2.9—3.2 mm longa.



Cheirodendrum kauaiense KRAJINA (A-M).
Cheirodendrum wahiauwense KRAJINA (N, O).

Filamentum 1'9—2'2 mm longum, 0'2—0'3 mm crassum; *anthera* 1'8—2 mm longa, 1'3—1'6 mm lata. *Ovarium* (*C*) inferum, 3—3'2 mm longum, basi 1'4 mm, superne 3'0—3'2 mm latum, (3—4—) 5-ovulatum. *Stylopodium* (*C*) anthesi humillimum, 0'5 mm altum, supra calycis dentes vix vel haud prominens. *Stylus* (*D, E*) persistens, brevissimus vel obscurus; *stigmata* (3—4—) 5, post anthesin adollescentes, ad basin fere libera, corniculata, manifestissima, 1'2—1'5 mm alta. *Drupa* (*D, E*) atrofusca, carnosa, pyrenata, globosa, 3'7—4'4 mm longa, 3'7—4'2 mm lata, sicca (3—4—) 5-costata, superficie subtiliter rugosa, calycis dentibus brevissimis, adpressis, persistentibus, (3—4—) 5-sperma, pyrenis (*L*) (3—4—) 5, exocarpio tenuissimo.

var. **typicum**. — Foliola manifeste longitudine latiora, pallidiora. — Tab. III. *M* et *V*. 1.

Insula *Kauai*: in parte occidentali silvae paludosae Alakai swamp prope Kilohana, altitudine circa 1200 m s. m., legi 14. I. 1930 (fr., typus); in convalle fluminis Waialae, altitudine circa 1100 m s. m., legi 6. II. 1930 (fr.); in parte orientali silvae paludosae Alakai swamp prope fontes rivi Halekua, altitudine circa 1320 m s. m., legi 26. I. 1930 (fr.).

var. **keakuense**, var. nova. — Foliola latitudine longiora, obscure viridia.

Insula *Kauai*: in parte orientali silvae paludosae Alakai swamp prope Keaku Cave, altitudine circa 1350 m s. m., legi 26. I. 1930 (fl.).

Cheirodendrum kauaiense, species bene distincta, ut *Cheirodendron platyphyllum* adhuc determinata, ab hac specie foliolis longitudine minus latioribus, semper integerrimis, panicula multo densiore, multiflora, calyculo membranaceo vel scarioso, patenti, floribus minoribus, ovario minore, stylopodio humillimo, drupa globosa, multo minore, exocarpio tenuissimo differt. A *Cheirodendro Dominii*, una cum quo saepe crescit, inter alia foliis integerrimis, nervis brochidodromis, haud craspedodromis, panicula maire, densiore, multiflora, corolla obscure fusca, petalis anthesi ad basin sejunctis, staminibus longioribus, stylopodio humiliore, stylo brevissimo, stigmatibus prominentissimis, paene liberis, corniculatis, drupa globosa, minore, exocarpio tenuiore. *Cheirodendrum kauaiense* in sua varietate *keakuensi* foliolis latitudine longioribus *Cheirodendro Gaudichaudii* SEEM. appropinquat, sed alias cum hac specie confusum esse non potest.

Cl. A. A. HELLER (l. c.) speciem nostram ut *Cheirodendron platyphyllum* ex insula *Kauai* attulit. Etiam cl. J. F. ROCK (l. c.) non solum *Ch. Dominii*, sed etiam *Ch. kauaiense*, quod autem habitu similis est, cum *Cheirodendro platyphylo* confudit.

Cheirodendrum wahiauwense, species nova.

Tab. II. *N*, III. *N. O*, *V*. 2.

Arbor amplior, 8—12 m alta. Rami floriferi sicci 2'5—3 mm crassi, fragiles, resinati, juveniles viventes teretes, sicci subtiliter sul-

cati, glabri. Folia (T. II. N) decussata, 15—24 cm longa, 14—24 cm lata, flaccida. Petiolus 5·5—10·5 cm longus, glaber, basi incrassatus, siccus basi 2·5—3 mm crassus. Foliola brevius petiolulata, petiolulis 3—4 cm longis, late ovata, latitudine paulo longiora, 6—8·5 cm longa, 5·5—8 cm lata, a basi in $\frac{1}{3}$ latissima, basi truncato-contracta, usque contracta, apice apiculato-acuta, margine grosse et disjuncte dentata, dentibus parum uncinatis, rarius (var. *populnea*) paene integra, quatuor vel six dentibus in dimidio inferiore armata, margine incrassata, viridia, superiore parte quam inferne distincte obscuriora, sicca superne manifeste nitida, inferiore parte fere opaca. Nervatio (T. II. N) pennata, nervis brochidodromis. Panicula umbellifera brevis, racemiformis, 7—8 cm longa, 5 cm lata (an semper?), paupera, 20—35-flora ramis oppositis fructiferis patentibus, umbellula paupera 1—4-flora, pedicelli fructiferi 0·25—0·4 mm longi. Calyculus (T. III. O) bilaciniatus, manifestissimus, laciniis 0·5—0·8 mm longis. Flores mihi ignoti. Drupa (T. III. O) maxima, fusca, carnosissima, pyrenata, valde compressa, sicca rugosa, ecostata, altitudine latior, 5·8—6·3 mm longa, 7—8·5 mm lata, 3·5—4 mm crassa, calycis dentibus obscuris, adpressissimis, disperma, pyrenis (T. III. N) duabus crassis, durissimis, exocarpio crasso, stylo brevi, 0·5 mm longo, stigmatibus (T. III. O) duobus vix prominentibus usque 0·5 mm longis.

var. **typicum**. — Foliola grosse tota margine uncinato-dentata. — Tab. II. N et V. 2.

Insula Kauai: in silva paludosa supra rivum Wahiawa sub monte Kahili, altitudine circa 630 m, legi 4. II. 1931 (fr.).

var. **populneum**, var. nova. — Foliola valde integriora, dimidio inferiore solum quatuor usque six dentibus instructo. Flores et fructus mihi ignoti.

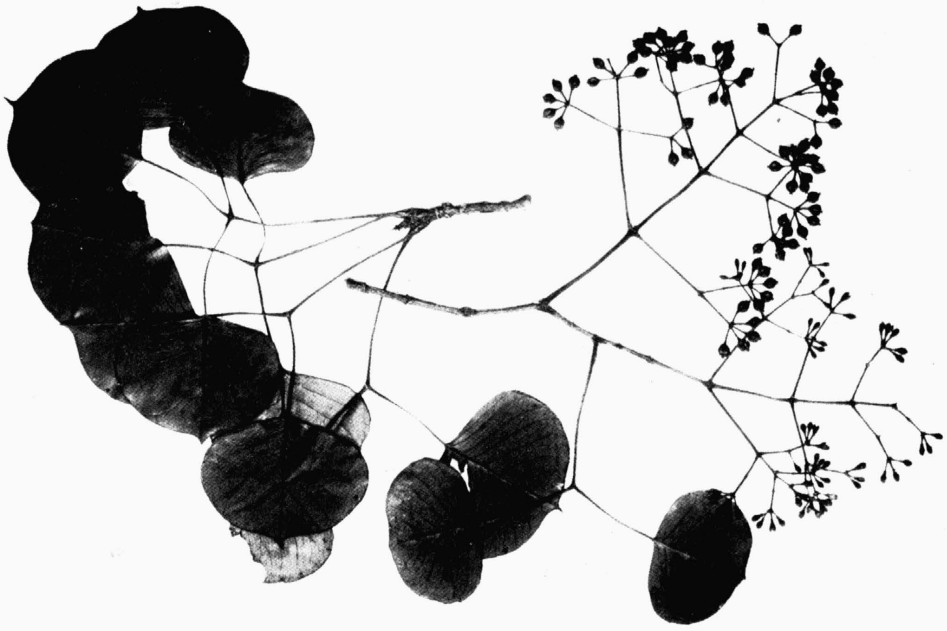
Insula Kauai: in silva paludosa supra rivum Wahiawa sub monte Kahili, altitudine circa 600 m, legi 4. II. 1931 (ster.).

Cheirodendrum wahiawense, species ab omnibus aliis valde diversa, a *Cheirodendro platyphylo* jam foliis paulo latitudine longioribus, grosse dentatis, nec integris, ramis tenuioribus, stigmatibus semper duobus, nec tribus usque quinque, calyculo bilaciniato, drupa valde maxima, carnosiore, compressa, a *Cheirodendro Dominii*, quam speciem aliquantum in mentem vocat, praecipue nervis brochidodromis nec craspedodromis, drupa multo maiore, carnosiore, compressa, stigmatibus duobus, calyculo bilaciniato, foliolis latitudine longioribus satis differt. Ad *Cheirodendrum kauaiense* praecipue ad varietatem *keakuense* in varietate *populneo* habitu paulo accedit, sed iam foliis semper latitudine longioribus, haud integerrimis, drupa stigmatibusque valde diversis primo aspectu distat. *Cheirodendrum wahiawense* nonnullis notis ad speciem *Ch. Gaudichaudii* SEEM. ostendit, cum qua autem confusum esse non potest.

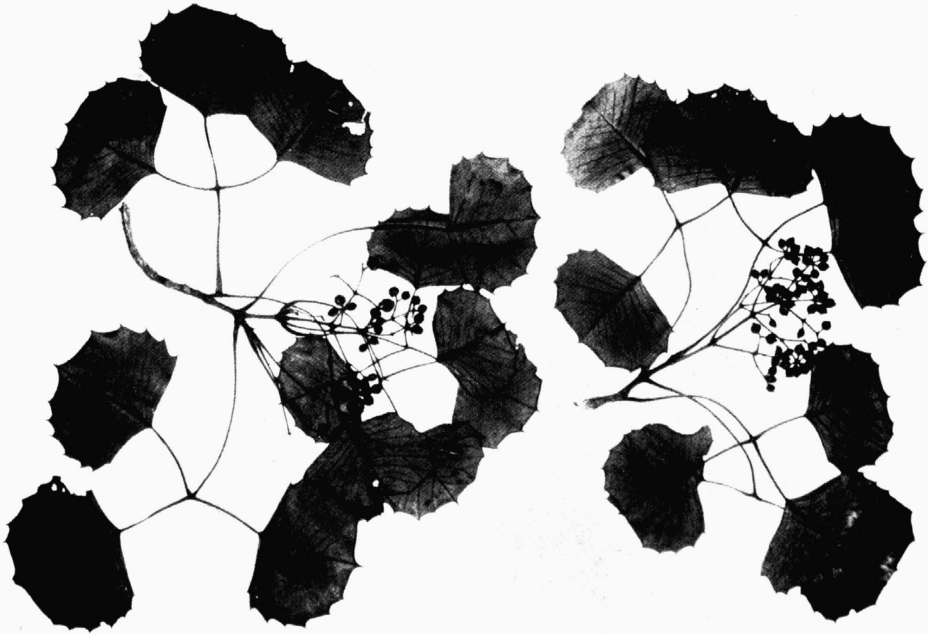
Adnotatio ad morphologiam calyculi generis *Cheirodendrum*.

Cl. H. HARMS (Araliaceae, in A. Engler, Die natürl. Pflanzenfam. III., 8. Abt., 5, 1898) calyculum generis *Cheirodendrum* ut pedicellum sub flore dilatatum et paene laciniatum tenet: »bei einigen Arten ist dieser unterhalb der Blüte schüsselartig erweitert und bisweilen sogar gezähnt, oder er geht, wie bei *Cheirodendron*, in mehr oder weniger deutliche Lappen aus«. Ita HARMS calyculum *Cheirodendri* ut cupulam Fagacearum explicat. Ipse autem permulta exemplaria specierum supra descriptarum in meo herbario comparavi et hunc calyculum e prophyllis abbreviatis compositum esse adfirmare possum. Interdum lacinae calyculi sub drupa valde dilatatae sunt et dein characterem phyllorum manifestissime ostendunt. Numerus laciniarum calyculi numero carpellorum in flore plerumque respondet.

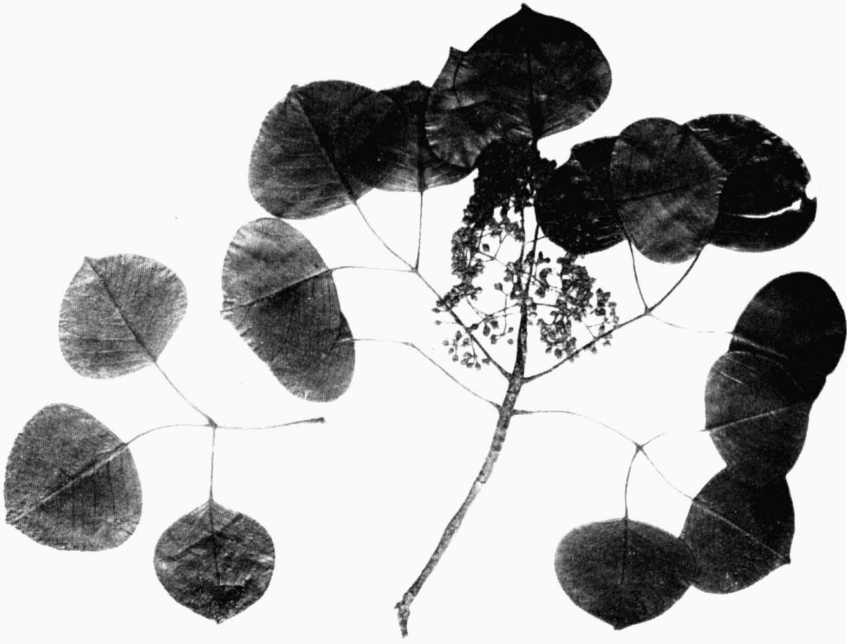
Nomine »calyculus« pro sententia »involucrum« usus sum, nam in panicula interdum umbella composita adest et dein calyculum nostrum cum involucro umbellae confusum esse posset. Calyculus *Cheirodendri* melius pseudocalyculus appellandus est.



1. *Cheirodendrum platyphyllum* SEEMAN.



2. *Cheirodendrum Dominii* KRAJINA.



1. *Cheirodendrum kauaiense* KRAJINA.



2. *Cheirodendrum wahiauwense* KRAJINA.