To the northwest of the island of Kauai in the main group of Hawaiian Islands, there is a line of small islands stretching 1,370 nautical miles towards Japan. The further ones, from Laysan to Kure (Ocean), are atolls. The nearer ones have a core of volcanic rock. Gardner Island has two volcanic islets, the larger one 170 feet high, but no emerged reef. French Frigates is an atoll, but it encloses two rock islets, the larger one 120 feet tall. Necker Island is a volcanic cone 276 feet high, rising from a submerged bank. Nihoa Island rises sheer from a 20 × 11-mile bank submerged 20 to 40 fathoms. It has two peaks, one 852 feet high, the other 895 feet high, and bears a good vegetation, and even has groves of an endemic palm tree.

Various explorations have been made of these Leeward Islands, and their flora is quite well known. Of course, on their shores, and on the atolls, both on shores and inland, there are found halophytic or psammophytic plants, most of which are widely distributed. The native ones are Cenchrus agrimonioideus Trin. var. laysanensis F. Br., C. echinatus L. var. Hillebrandianus (Hitch.) F. Br., Eragrostis Whitneyi Fosb. var. Caumii Fosb., Lepturus repens (Forst. f.) R. Br., Sporobolus virginicus (L.) Kunth, Cyperus laevigatus L., C. pennatiflorus Kuekenth. var. Bryanni Kuekenth., Santalum ellipticum Gaud., Acryanthaes splendens Mart. var. reflexa Hbd., Boerhavia diffusa L., Sesuvium Portulacastrum (L.) L., Portulaca oleracea Soland., P. villosa Cham., Lepidium o-awahiense C. & S., Capparis sandwichiana DC. var. Zobariy Deg. & Deg., Tribulus cistoides L., Ipomoea brasilensis (L.) Sweet, Nama sandwicensis Gray var. layianicum Brand, Heliotropium curassavicum L., Phyllostegia variabilis Bitter, Sicyos spp., Scaevola Taccada (Gaertn.) Roxb., and Lipochaeta integrifolia (Nutt.) Gray.

There are other species that occur both on the sand flats of atolls and upland on the volcanic islands. They include Eragrostis variabilis (Gaud.) Steud., Chenopodium oahuense (Meyn) Aellen, f. microsporum Aellen, Sesbania tomentosa H. & A., Sida fallax Walp., Ipomoea congesta R. Br., and Solanum Nelsoni Dunal.

Most interesting of all are the strictly upland plants which are deemed remnants of the larger flora that inhabited these volcanic islands when their peaks were taller and larger. They include Panicum torridum Gaud., Pritchardia remota Becc., Rumex giganteus Ait., Amaranthus Brownii Christoph. & Caum, Alsinodon drontum verticillatum (F. Br. in Christoph. & Caum) Sherff, and Euphorbia celastroides Boiss. var. celastroides.

As evident relics of a larger upland flora in ages past, the most interesting of these are Pritchardia, Rumex, Amaranthus, Alsinodon, Euphorbia, and Phyllostegia.

The dispersal agents for nearly all of the native plants seem to be sea flotation or bird carriage. None seem to be wind carried.

There are also a few adventive species on these islands, but they are not listed or discussed here.

Sicyos on the Leeward Islands

Most of the species of Sicyos endemic to the principal Hawaiian Islands are upland species, growing in areas well removed from the sea shore and its influences. Only one, S. microcarpus Mann, does occur close to the ocean, and on Oahu on the leeward shores it is common on coral flats and sandy shores, but also is common and much more vigorous on the lower and middle slopes of the Waianae Mountains. In 1931 Christophersen and Caum (1931, pp. 37–38) recognized three species of Sicyos on these islands, but now the number is raised to six. Five are considered distinct from the species of the main islands, but one also occurs on Oahu.
They are found on all but three of the Leeward Islands, and extend to the furthest one, Kure. Of the remaining five species, two occur on two islands, and three only on a single island. On Laysan there are three species, and on Kure two. All these islands are nesting sites of multitudes of sea birds. Evidently the birds have carried fruits of *Sicyos* from one island to another, as all of the species in that area have glands or viscid hairs on their fruits, and the fruits are small, light, and easily portable.

*Sicyos laysanensis* sp. nov. (sect. *Sicyos*)

Fig. 1

**Nom. vern.**: “white blossom.”

**Diagnosis holotypti**: Liana herbacea est, novellis remote hispidulibus sed mox glabratissimis longitudinaliter costatis, caulibus subviridibus ad stramineis, internodis 7–12 cm longis, cirrhis in nodis lateralis trifurcatis pedunculo 2–3.5 cm longo furcis gracilibus in spiris, petiolis 4–11 cm longis profunde cordatis orbicularibus minute palmatim 5–7-lobatis lobis fere 1/15 ad centrum extensis sinibus (sept. Cladocarpa) vadose irregulariter dentatis et dentibus ex venulis excurrentibus mucronatis sinu basali U-formati laminis chartaceis vel submembranaceis supra obscure viridibus crebre pustulatus scabris infra pallide viridibus et valde pustulatis albidis scabris et paucis majoribus breviter pustulatis hispidulis, paniculis masculis 6–10 cm longis supra hirsutulis infra sparse ita, pedunculo 4–9 cm longo, pedicelis 2–4 mm longis filiformibus, alabastris 1.3–1.5 mm diametro globosis subsuluteis sparse hispidululis lobis calycis 0.2 mm longis subulatis, perianthii in flore 3 mm diametro rotatis albis tubo 0.8 mm in radio, lobis 5 et 1.8–2 mm longis 0.9–1.2 mm latis intra capitata glandulose puberulis 4 lobis minoribus simulantes uxorii, columnae staminum 0.5–0.7 mm longis, 3 antheris 1–1.6 mm longis curvatis, inflorescentiae feomineae 1.5–3 cm longis in nodis lateralis solitariis vel cum 1–2 masculis, pedunculo 15–18 mm longo sparsim piloso, floribus feomineis 80 in capitula ea in flore 5–7 mm diametro in fructu 15 mm diametro, corolla epigyna 2.2 mm diametro rotata extra proxima basem remo puberula intra glandulose-atomifera, tubo 0.2 mm diametro ad basim et ad apicem hispidulo, 4 lobis 0.9 mm

**Key to* Sicyos* species**

A. Fruits entire, with simple hairs; young shoots glabrous or glabrate, ......... (sect. *Sicyos*)

B. Seed 3 mm long; leaves 3.5–5.8 cm wide, stellately 5–7-lobed; young shoots glabrous.

Nihoa. ........................................... *S. nihoaensis*

B. Seed 1.8–2.5 mm long; leaves 8–11.5 cm wide, scarcely lobed; young shoots remotely hispidulous, glabrate. Laysan, Oahu. ..................... *S. laysanensis*

A. Fruit with long, hairy, elongate, branch-like projections; young shoots pilosulous to hisporate or villous, ..................... (sect. Cladocarpa)

C. Fruit 6–7 mm long; seed 4.2 mm long; staminate corolla lobes elliptic, acute; tendril 3-forked. Lisianski, Kure. ...................... *S. Lamoureuxii*

C. Fruits 10–13 mm long; seed 4–7 mm long; staminate corolla lobes ovate, acute,

D. Fruit lobes densely hispulate,

E. Seed 5 mm wide, 6.5–7 mm long; pistillate flower sparsely hispate without; tendrils 3–5-forked. Pearl and Hermes. .................... *S. Caumii*

E. Seed 4 mm wide, 7 mm long, narrowly ellipsoid; pistillate flowers glandular puberulent throughout; tendrils 3–4-forked. Kure, Laysan. ........... *S. atollensis*

D. Fruit lobes sparsely short hispulate; seed 6 × 4.2 mm; tendrils 4–5 forked. Laysan. ............................................. *S. semitonius*

**Fig. 1. Sicyos laysanensis* St. John, from holotype. a, Flowering branch and young shoot, × ½; b, staminate bud, × 10; c, staminate flower, × 10; d, fruit and pistillate flower, × 5; e, seed, lateral view, × 5; f, seed with hilum. apical view, × 5.
longis 0.3 mm latis oblongi-ellipticis acutis, stylo 2 mm longo glabro, lobis stigmatis tribus 0.4–0.5 mm longis linearibus, anthocarpis 4–6 mm longis 2.5 mm latis dimidio supero libero pilosulo corpore 3–3.5 mm longo late obovoido anguloso compresso prope seminem chartaceo rostro gracili 1.5–2 mm longo, semine 1.8 mm longio 1.4 mm lato 0.8 mm crasso ellipsoideo compresso brunneo laevi, hilo 0.8 mm longo, elevato cartilagineo stramineo jugis labiis apertis in linea simulanti.

**DIAGNOSIS OF HOLOTYPE:** Herbaceous vine; the young shoots remotely hispidulous, soon glabrate; stems greenish to stramineous; internodes 7–12 cm long; tendril lateral to the petiole base, 3-forked, glabrous, the stalk 2–3.5 cm long, the slender forks spiralling; petioles 4–11 cm long, sparsely hirsutulous; blades 8–12.5 cm long, 8–11.5 cm wide, deeply cordate orbicular, perceptibly palmately 5–7-lobed, but the lobes extending only about 1/15 way to the center, the broad shallow sinuses 3–5 mm deep, the apex acute, the margin shallowly irregularly dentate and each tooth mucronate by an excurrent veinlet tip, the basal sinus U-shaped, texture chartaceous to almost membranous, above dark green, abundantly pustulate scabrous, below pale green and abundantly white pustulate scabrous and with a few larger ones pustulate short hispidulous; staminate panicles 3.5–10 cm long, the peduncle 3–9 cm long; staminate buds 1.5–2 mm in diameter; pistillate flowers about 35–80 in a head; the body 3–4 mm long, the beak 1–2 mm long; seed 1.8–2.5 mm long.

**HOLOTYPUS:** Hawaiian Leeward Islands, Laysan Island, May 1911, W. A. Bryan, no. A (BISH).

**SPECIMENS EXAMINED:** Hawaiian Leeward Islands, all from Laysan Island, June 1962, J. W. Beardley (BISH); on sand and guano, not abundant, April 1903, W. A. Bryan (BISH); s. end of island, prostrate in dark sand, 1 m alt., July 25, 1959, C. W. Daniel 18 (BISH), and July 26, 1959, 32, and 33 (BISH); ditto, n. w. end of lagoon, in flat with Ipomoea, Sept. 19, 1964, C. R. Long 2, 370, and 2,372 (Univ. Hawaii); prostrate on sandy substratum on s. side of island about 50 m from lagoon’s edge, Dec. 5, 1963, R. Tsuda 502 (BISH); ditto, s. e. shore of lagoon, growing over Cyperus, Eragrostis, Scaevola, and Ipomoea, Sept. 17, 1964, A. L. Young 156 (Univ. Hawaii).

Hawaiian Islands: Oahu Island, between Barbers Point and Pearl Harbor, May 8, 1932, O. Degener 18,394 (BISH); Ewa Plantation, on cultivated land, Jan. 23, 1952, J. B. Menardi (BISH); Honolulu, Damon Tract, in abandoned housing area, in coral rock, dry, 2 ft alt., April 3, 1959, G. A. Pearsall 351 (BISH).

**DISCUSSION:** *S. laysanensis* is a member of the section *Sicyos*, as is its closest relative, *S. niboensis* a species with the staminate panicles 1–3.5 cm long, glabrous; staminate buds 1.5–2 mm in diameter; pistillate flowers 18–30 in a head 15 mm in diameter; pistillate corolla 3.1 mm in diameter, the lobes 0.5–0.7 mm wide; anthocarp body 4–5 mm long; seed 3 mm long,
suborbicular, compressed; petioles 1.5–3.3 cm long; blades 3–4.7 cm long, below short hispidulous from pustulate bases. *S. laysanensis* has the stamine panicles 6–10 cm long, hirsutulous; stamine buds 1.3–1.5 mm in diameter; pustillate flowers 80 in a head 5–7 mm in diameter; the corolla 2.2 mm in diameter, the lobes 0.3 mm wide; anthocarp body 3–3.5 mm long; seed 1.8 mm long, elliptic, compressed; petioles 4–11 cm long; blades 8–12.5 cm long, below abundantly white pustulate scabrous, or with a few of the larger spots pustulate short hispidulous.

The new species is certainly also a close relative of *S. microcarpus* Mann, of Oahu, but that species has the young shoots white puberulous, and the older stems sparsely so; tendrils 2–3-forked, sparsely white puberulous; stamine pedicels 1–2.5 mm long; calyx lobes wanting; staminal column 1 mm long; anthers 0.5–0.6 mm long; pustillate flowers 25–40 to a head, the corolla 4.7 mm in diameter, the lobes 1.2–1.5 mm long; style 1.3 mm long; anthocarp upper part puberulous, the beak 0.5–1 mm long; seed 2–2.5 mm long. *S. laysanensis* has the young shoots remotely hispidulous, soon glabrate; tendrils 3-forked glabrous; stamine pedicels 2–4 mm long, the calyx lobes 0.2 mm long, subulate; anthers 1–1.6 mm long; staminal column 0.5–0.7 mm long; pustillate flowers 80 to a head, the corolla 2.2 mm in diameter, the lobes 0.9 mm long; style 2 mm long; anthocarp upper part piliuous, the beak 1.5–2 mm long; seeds 1.8 mm long.

The new epithet is formed from the name of the type locality, Laysan Island, and -ensis, the Latin adjective place ending.

*Sicyos niboensis* sp. nov. (sect. *Sicyos*)

Fig. 2

**DIAGNOSIS OF HOLOTYPE:** Herbaceous trailing vine; stems 1.5–2 mm in diameter, stramineous, glabrous, longitudinally ribbed; young shoots glabrous; internodes 1.3–4.3 cm long; tendril lateral to the petiole base, 2–3-forked, glabrous, the stalk 15–22 mm long, the slender forks spiralling; petioles 1.5–3.3 cm long, glabrous; blades 3–4.7 cm long, 3.5–5.8 cm wide, suborbicular, deeply cordate, palmately 5- or 7-lobed, the lobes extending 2/5–3/7 way to the center, the broad V-shaped sinuses 11–15 mm deep, the apex acute, the basal sinus deep, narrowly V-shaped, but closed by the overlapping lobes, the margins shallowly doubly denticate and each tooth mucronate by an excursion veinlet tip, texture thin chartaceous, above dark green and white acute scabrous pustulate, below pale green and short hispidulous.
from pustulate bases; staminate panicles 1–3.5 cm long, glabrous; peduncle 5–26 mm long, filiform; pedicels 1–4 mm long, filiform; bud 1.5–2 mm in diameter, elliptic-subglobose, yellowish, glabrous below, sparsely puberulous above; calyx lobes wanting; perianth in anthesis 5 mm in diameter, white, rotate, glabrous within, the tube 1 mm in radius, the five lobes 1.8–2 mm long, 0.9–1.2 mm wide, elliptic, acute, unequal; staminal column 0.7 mm long, the 3 anthers 0.5 mm long, spirally curved; pistillate inflorescence on a glabrous peduncle 7–10 mm long, lateral at a node together with a staminate one; pistillate flowers 18 in a head, this 15 mm in diameter in fruit; perianth epigynous, 3.1 mm in diameter, rotate, the tube 1 mm in diameter, the 4 (or 5) lobes 1.2–1.3 mm long, 0.5–0.7 mm wide, elliptic or narrowly so, acute; style 0.7 mm long, glabrous; stigma lobes forming a 0.2 mm capitate apex; anthocarps 6.5 mm long, 3–4 mm wide, the body 4–5 mm long, broadly ellipsoid, the contiguous parts glabrous, chartaceous next to the seed, the free part and the 2-mm beak sparsely puberulous; seed single, 3 mm long, 2.3–2.7 mm wide, 0.8 mm thick, suborbicular, compressed, the testa brown, smooth; the hilum 1.7 mm long, elevated, cartilaginous, staminate, shaped like two pairs of lips in a line.

EXPANDED DESCRIPTION: Internodes 1.3–6 cm long; blades 3–7.5 cm long, 3.5–9 cm wide; pistillate peduncle 7–20 mm long; pistillate flowers 18–30 in a head, this 12–15 mm in diameter; fruits 6.5–8.5 mm long, the beak 2–3 mm long.

HOLOTYPUS: Hawaiian Leeward Islands, Nihoa Island, w. slope of Tanager Peak, on Cheno-podium sandwicensem, 200 m elev., July 12, 1924, E. Christophersen & T. Dranga 9 (BISH).


DISCUSSION: S. niboaensis is a member of the section Sicyos, as is its closest relative, S. micro-carpus Mann, of Oahu, a species with the staminate buds 2.2 mm in diameter; seed 2.5 mm long, narrowly ellipsoid; anthocarp free, upper part and beak abundantly pilosulous, and less so on the angles of the contiguous parts; blades 5–25 cm long, thin membranous, the basal sinus widely U-shaped, below papillose. S. niboaensis has the staminate buds 1.5–2 mm in diameter; seed 2.3–2.7 mm long, suborbicular; anthocarp contiguous parts glabrous, the free upper part and the beak sparsely puberulous; blades 3–4.7 cm long, thin chartaceous, the deep basal sinus closed by the overlapping lobes, below short hirsute from pustulate bases.

The new epithet is formed from the name of the type locality, Nihoa Island, and -ensis, the Latin adjectival place ending.

Section Cladocarpa sect. nov.

Anthocarps 3 vel 5 spirales sunt, fructibus lignosis lanceoloides ad obovoideis et cum projectionibus ramiformibus rigidis pubescentibus lateribus arte seminem inciduntibus.

Anthers 3 or 5, spiral; fruit woody, lanceoloid or obovoid, the thick pericarp closely investing the seed, the surface with numerous branch-like, long hairy projections.


Other species in this new section are: S. atollensis St. John, S. Caumii St. John, S. hispidus Hbd., S. Lamoureuxii St. John, S. Maximovitczii Cogn., and S. semitosus St. John.

Cogniaux (1881, p. 898) placed S. micro-carpus Mann in the section Sicyocarpa, but on account of its small fruits with loose, thin pericarp, he should have put it in section Sicyos (his Eusicyos). His section Sicycarpa, which he attributed to Gray, was merely an invalid orthographic variant of section Sicyocarya (Gray) (1854, p. 649).

Cogniaux (1881, p. 895) placed his new S. Maximovitczii in his section Sicyocarpa, which
action at that time was logical. Now, because of the long hairy lobes of the fruit, it is assigned to the section Cladocarpa.

The new name is formed from the Greek words klados, branch, and karpos, fruit, and it is given with reference to the branch-like lobes of the fruit.

**Sicyos atollensis** sp. nov. (sect. Cladocarpa)

**Fig. 3**

**DIAGNOSIS HOLOTYPE:** Liana herbacea procumbens vel scandens est, novelis viscidis et capitata glandulose villosis catenulatis, caulibus maturis stramineis vel subrubris viscidis et sparse villosis, internodis 7–12.5 cm longis, cirrhis in nodis lateralisibus 3–4-furcatis, pedunculo 17–40 mm longo compresso plurianguloso capitato glandulose villoso catenulato fucris gracilibus elongatis et pilosis, petiolois 3.5–4.5 cm longis crebre glandulose hirsutis catenulatis, laminis 7.5–9 cm longis 8–10 cm latis reniformibus vadose palmatim 5-foliatis lobis 1/5–1/10 ad centrum extensis sinibus latis vadosis 5–11 mm profundis apice subacuto sinu basali anguste V-formati vel occlosus marginibus ex apicibus excurrentibus umbonatis venularum denticulatis texture gracile chartaceae vel membranacea supra obscure viridibus crebre minute glandulose hirsutulis infra capitata glandulose hirsutulis et in nervis grosse ita, paniculis masculis 5–18 cm longis capitata glandulose hirsutis catenulatis, pedunculo 4–11.5 cm longo, pedicellis 3–8 mm longis filiformibus, alabastris 3 mm diametro oblate globosis densiter puberulis, lobis calycis 0.5 mm longis subulatis, staminate flowers yellow, perianth in anthesis 7.5 mm in diameter, rotate, within glandular dotted, the tube 1.5 mm in radius; 5 corolla lobes subequal, 2.2–2.5 mm long, ovate, acute, 3–5-nerved; staminal column 1.5 mm long, glabrous, the apex expanded and funnelform, with 5 curving anthers 0.8 mm long; pistillate flowers epigynous, half buried in the villous hairs of the ovary, 3.5 mm in diameter, rotate, glabrous within, glandular puberulent without, the 6 elliptic lobes 1 mm long, 0.5 mm wide; style 0.8 mm long; the 3 stigmatic lobes 0.8 mm long, cernuous.

**EXPANDED DESCRIPTION:** Petiolois 3.5–11 cm long; blades 7.5–12 cm long, 8–16 cm wide, the lobes 5–22 mm deep, the basal sinus U-shaped to V-shaped; staminate panicles 5.5–23 cm long; peduncle 4–14 cm long; anthocarps

**DIAGNOSIS OF HOLOTYPE:** Herbaceous vine, trailing or climbing; young shoots viscid and also capitata glandular catenulate villous; mature stems stramineous to reddish, and similarly viscid and sparsely villous; internodes 7–12.5 cm long, tendril lateral to a petiole base, 3–4-forked, the stalk 17–40 mm long, flattened, several-angled, capitata glandular catenulate villous, the slender elongate forks spiralling and similarly pilosulous; petioles 3.5–4.5 cm long, densely glandular catenulate hirsute; blades 7.5–9 cm long, 8–10 cm wide, reniform, shallowly palmately 5-lobed, the lobes extending 1/5–1/10 way to the center, the broad shallow sinuses 5–11 mm deep, the apex subacute, the basal sinus narrow V-shaped or closed by overlapping lobes, the margin denticate by excurrent umbonate veinlet tips, texture thin chartaceous to membranous, above dark green, densely minute capitata glandular hisrutulous, below capitata glandular hisrutulous and shaggily so on the veins; staminate panicles 5.5–18 cm long, capitata glandular catenulate hirsute; peduncle 4–11.5 cm long; pedicels 3–8 mm long, filiform; bud 3 mm in diameter, oblate globose, closely puberulous; calyx lobes 0.5 mm long, subulate; staminate flowers yellow, perianth in anthesis 7.5 mm in diameter, rotate, within glandular dotted, the tube 1.5 mm in radius; 5 corolla lobes subequal, 2.2–2.5 mm long, ovate, acute, 3–5-nerved; staminal column 1.5 mm long, glabrous, the apex expanded and funnelform, with 5 curving anthers 0.8 mm long; pistillate flowers epigynous, half buried in the villous hairs of the ovary, 3.5 mm in diameter, rotate, glabrous within, glandular puberulent without, the 6 elliptic lobes 1 mm long, 0.5 mm wide; style 0.8 mm long; the 3 stigmatic lobes 0.8 mm long, cernuous.

**EXPANDED DESCRIPTION:** Petiolois 3.5–11 cm long; blades 7.5–12 cm long, 8–16 cm wide, the lobes 5–22 mm deep, the basal sinus U-shaped to V-shaped; staminate panicles 5.5–23 cm long; peduncle 4–14 cm long; anthocarps

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Fig. 3. *Sicyos atollensis* St. John, from holotype. *a*, Flowering branch, × 1/2; *b*, young shoot, × 1/2; *c*, staminate bud, × 5; *d*, staminate flower, × 5; *e*, pistillate flower, × 10; *f*, anthocarp, × 5; *g*, seed, lateral view, × 5, from 6/15/62, Beardsley; *h*, seed with hilum, apical view, × 5, from 6/15/62, Beardsley.
10–13 mm long, 9 mm wide, 5–7 mm thick, obovoid, cuneate at base, the body 5 mm wide, compressed, narrowly obovoid above the short cuneate base, softly white pilose throughout, the upper 2/3 with several ridges and covered by numerous lobes 1.5–2 mm long, spatulate, rigid, stramineous, these densely white catenulate capitulate glandular hirsutulose; seeds 7 mm long, 4 mm wide, 2.3 mm thick, narrowly ellipsoid, compressed, reddish brown, smooth, shining, the hilum 2.2 mm long, elevated, pale cartilaginous, shaped like two pairs of fat lips in a line.

**HOLOTypUS:** Hawaiian Leeward Islands, Ocean Island, *Scaevola "islands"* in central plain and near by, 4 m alt., April 18, 1923, E. L. Caum 13 (bish). Isotype (w).

**SPECIMENS EXAMINED:** Hawaiian Leeward Islands, all from Laysan Island and all in (bish), 6/15/62, J. W. Beardsley; May 1911, W. A. Bryan no. B; Feld, 4.7.1896, Schauinsland; vine climbing over brush, Aug. 10, 1930, G. P. Wilder 473.

**DISCUSSION:** Contrasts with the closest relative, *S. Caumii* St. John, are given under that species. With adequate collections from both islands, no morphological basis has been found for separating the plants of Laysan from those of Kure (Ocean) Island. Since the anthocarps are hairy and viscid, they may well be transplanted by the visiting or nesting sea birds from one to another island.

The only hint of a difference is a suggestion in the collector’s field notes. For his Ocean Island collection Caum recorded: "Flowers tiny, yellow, in large open panicles." Since the pistillate flowers are in small green heads, this field note must apply to the long panicles of staminate flowers, which hence are said to be yellow.

W. A. Bryan collected two species of *Sicyos* on Laysan Island. The first one he marked no. A, and called it the "white blossom." This indicates that the staminate flowers were white, in this first species, here described as *S. laysanensis*. He also collected the second species on Laysan, and marked it no. B, and called it the "Green pea colored blossom." This sounds like a clear color distinction, but on analysis it is not very clear. Did Bryan mean that the staminate flowers were the color of fresh or canned green peas, or did he mean that the flowers were of the same color as the blossoms of *Pisum sativum*? Its blossoms are generally white, but the petals actually are from rose to violet to dark purple violet, blending to white or greenish white. Of these various possibilities, the more likely one is that the Laysan species, represented by Bryan no. B, has bright green staminate flowers. Even so, no definite basis has been found for separating these Laysan collections from the similar ones found on Ocean Island.

**Sicyos Caumii** sp. nov. (sect. Cladocarpa)

Fig. 4

**DIAGNOSIS HOLOTypI:** Liana herbacea scandens est, novellis hirsutis capitati-glandulosis catenulatis, caulisibus angulosis snarminis remote hirsutis, internodis 3–12 cm longis, cirrhis ad petiolos lateralisibus 3–5–ramosis, pedunculo 20–45 mm longo compresso angulosol hirsutulo capitati-glanduloso, ramis gracilibus hirsutulis capitati-glandulosi, laminis 6–12 cm longis 6.5–14.7 cm latibus reniformibus palmatim vadosior 5-lobatis lobis 1/10 ad centrum extensis sinibus latios vadosis 5–7 mm profundis apice subito breve acuto sinu basali profundo U-formato sed angusto et fere occullo marginibus subintegris sed in apicibus venulis umberonis formae chartaceae supra obscurs viridibus et scabris hirsutis cum basibus postulatis albis infra pallide viridibus et densiter hirsutulis capitati-glandulosi basibus albis postulatis, paniculis masculis 8–13 cm longis, pedunculis 5–8.5 cm longis angulosis hirsutis capitati-glandulosi catenulatis, rachidi et pedicelis densiter hirsutulis capitati-glandulosi catenulatis, pedicelis 3–6 mm longis, alabastris masculis 2.5–2.8 mm diametro oblate globoso dense hirsuto capitati-glanduloso, lobis calyces 0.2 mm longis subulatis, floribus majoribus in flore cum perianthio 7 mm diametro rotato intra puberulo capitati-glanduloso, tubo...
in radio 1.8 mm longo, lobis 5 inaequalibus eis 4 majoribus 2.2 mm longis late ovatis trinervosis illo minori 1.8 mm longo lanceolato obtuso, columna staminalis 1 mm longa glabra in apice trifurcata furco quoque lato divergenti cum anthera 1.3 mm longo curvata, floribus minoribus 5.6 mm diametro rotato, 5 lobis 1.8 mm longis simulantibus late ovatis, columna staminalis 0.7 mm longa in apice cum 5 antheris 0.4 mm longis late elliptoideis, inflorescentia foeminali 15–45 mm longa solitaria, pedunculo 8–35 mm longo hisuro catenulato capitati-glandulos, floribus fere 25 capitatis, capitula in flore 8 mm diametro in fructu 25 mm diametro, ovario 2.7 mm longo villoso, corollis 3.2 mm diametro epignyis luteis rotatis extra sparse hirsutulis et copiose puberulis obscurs incapiti-glandulos, lobis ovatis 1.3 mm longis trinervosis extra obscure puberulis capitati-glandulos, stylo 1 mm longo glabro, 3 lobis stigmatibus 1–1.2 mm longis ellipticis crassis, anthers capitis 10–12 mm longis 6–9 mm latissimis crassis obvoideis vel oblancoideis basi cuneata corpore 5.5–6.5 mm lato lignoso omnino molliter puberulo albo parte 2/3 supera cum fugis acribus compluribus eis cum lobis ligulatis 1.5 mm longis rigidis stramineis advententibus ferrentibus eis hisutis glandulosis catenulatis, seminie 6.5–7 mm longo 5 mm lato 2.5 mm crassio late obvoido compresso sublutei-brunneo laevi lucido, hilo 2.5–2.7 mm longo elevato cartilagineo fugis labiis duobus in lineas simulantibus.

**DIAGNOSIS OF HOLOTYPE:** Climbing herbaceous vine; young shoots capitile glandular catenulate hisrute; stems angular, stramineous, remotely hirsute; internodes 3–12 cm long; tendrill lateral to the petiole base, 3–5-forked; the stalk 20–45 mm long, flattened, several-angled, capitile glandular hisrutulous, the slender forks spiralling, capitile glandular hisrutulous; blades 6–12 cm long, 6.5–14.7 cm wide, reniform, very shallowly palmately 5-lobed, the lobes extending about 1/10 way to the center, the broad shallow sinuses 5–7 mm deep, the apex abruptly shortly acute, the deep basal sinus U-shaped but narrow and nearly closed, the margins subentire but umbonate at the excurrent vein ends, texture firm chartaceous, above dark green and scabrous from the hisrute pubescence from white pustulate bases, below pale green and densely capitile glandular hisrutulous from white pustulate bases; stamine panicles 8–13 cm long; peduncle 5–8.5 cm long, angeld, and capitile glandular catenulate hisrute; rhachis and pedicels densely capitile glandular catenulate hisrutulous; pedicels 3–6 mm long; buds 2.5–2.8 mm in diameter, oblate globose, densely capitile glandular hisrutulous; calyx lobes 0.2 mm long, subulate; flowers dimorphic, the larger ones with perianth in anthesis 7 mm in diameter, rotate, within capitile glandular puberulous, the tube 1.8 mm in radius, the 5 lobes unequal, the 4 larger ones 2.2 mm long, broadly ovate, 3-nerved, the one smaller one 1.8 mm long, lanceolate, obtuse; staminal column 1 mm long, glabrous; the apex with 3 widespread broad forks, each bearing one anther 1.3 mm long, curved; the smaller type of flowers 5.6 mm in diameter, rotate, the 5 corolla lobes 1.8 mm long, similar, broadly ovate; stamens capitile glandular puberulous about 25 to a head, this 8 mm in diameter in flower but 25 mm in diameter in fruit; ovary 2.7 mm long, villous; corolla epigynous, yellow, 3.2 mm in diameter, rotate, without sparsely hisrutulous, and abundantly dark capitile glandular puberulous, the ovate lobes 1.3 mm long, 3-nerved, and dark capitile glandular puberulous without; style 1 mm long, glabrous; the 3 stigmatic lobes 1–1.2 mm long, elliptic, crenatous, anthocarp 10–12 mm long, 6–9 mm wide, 4–5 mm thick, obvoid or oblancoidei from a cuneate base, the body 5.5–6.5 mm wide, woody, softly white puberulent throughout, the upper 2/3 with several sharp ridges which bear numerous rigid ligulate lobes 1.5 mm long, stramineous, ascending, and these densely glandular catenulate hisrute; seed 6.5–7 mm long, 5 mm wide, 2.5 mm thick, broadly obvoid, compressed, light yellowish brown, smooth, shining, the hilum 2.5–2.7 mm long, raised, cartilaginous, shaped like two pairs of fat lips in a line.

**HOLOTYPE:** Hawaiian Leeward Islands, Pearl and Hermes Reef, Seal Island, e. half of higher
part of island, 3 m alt., April 27, 1923, E. L. Caum 53 (BISH).

SPECIMENS EXAMINED: Hawaiian Leeward Islands, Pearl and Hermes Reef, Southeastern Islet, on e. side, 2 m alt., April 26, 1923, Caum 42 (BISH); ditto, Aug. 1930, P. C. Galisoff (US); ditto, in central depression with Solanum, Eragrostis, and Boerhavia, Sept. 17, 1964, C. R. Long 2,303, and 2,280 (Univ. Hawaii); ditto, sea level, May 18, 1923, G. P. Wilder 4 (BISH); ditto, central plain, with Tribulus, Boerhavia, Solanum nelsoni, 9–10 ft alt., Aug. 18–20, A. L. Young 117; 119; 121 (Univ. Hawaii).

DISCUSSION: The nearest relative of S. Caumii is S. atollensis St. John of Kure and Laysan islands, a species with the staminate bud closely puberulous; pistillate corolla sparsely puberulous without; anthocarp body softly white pilosulous; seed 7 × 4 mm, narrowly ellipsoid; tendrils 3-forked. S. Caumii has the staminate buds densely capitate glandular hirsutulous; pistillate corolla sparsely hirsutulous and abundantly dark capitae glandular puberulous; anthocarp body softly white puberulent; seed 6.5–7 × 5 mm, broadly obovoid; tendrils 3–5-forked.

The new epithet is given in honor of the collector, Edward Leonard Caum (1893–1952), assistant forester of the Hawaiian Sugar Planters Experiment Station, Honolulu.

Sicyos Lamoureuxii sp. nov. (sect. Cladocarpa)

Fig. 5

DIAGNOSIS HOLOTYPE: Liana herbacea repens vel scandens pilosula pilumque persistentibus us, caulisus stramineis angulosus, internodis 5.5–13 cm longis, cirrhis in nodis lateralis trifurcatis pedunculo 17–52 mm longo compresso plurianguloso capitae glanduloose pilosula furticis gracilibus sporis formantibus sparse capitae glanduloose pilosula, petiolis 3.5–9 cm longis pluriangulosis minute glanduloose pilosulis, lamillis 6–10 cm longis 6.5–11.6 cm latis reniformibus ad cordatis vadosiis palmatim 5-lobatis lobiis 1/10 ad centrum extensis sinibus latis vadosis 6–8 mm profundis apice subito acuto sinu basali profundo U-formato margine subintegro sed in apicibus nervulis excurrentibus umbonatis, lamina firme chartacea supra obscure viridi scabro capitae glanduloose hirsutulo basi-

bus pustulatis infra pallide viridi et denister glanduloose capitae hirsutula basibus pustulatis, paniculis masculis 12–17 cm longis capitae glanduloose hirsutulis denser supra, pedunculo 5.5–12 cm longo, pedicelis 3–10 mm longis minute glanduloose-pilosulis, alabastro 2–2.3 mm diametrio oblate globoso denser capitae glanduloose pilosulo, perianthio in flore 7 mm diametro rotato licet albo intra capitae glanduloose puberulo tubo 1.5 mm in radio, 5 lobis 2–2.5 mm longis 1.5 mm latis ellipticis subacutis trinerviosis, columna staminalis 1 mm longa, 5 antheris 1.5 mm longis curvatis, inflorescentia foeminea 18–30 mm longa in nodo lateralii, pedunculo 14–22 mm longo capitae glanduloose hirsutulo, floribus foemineis fere 20 in capitulo in flore 10 mm diametro sed in fructu 13–15 mm diametro, ovario 4 mm longo obovoideo dimidio supero ex lobis longe pubescentibus occlusulo, corolla epigyna 3.5 mm diametro tubo 1.5 mm diametro infundibuliformi intra breve capitae glanduloose puberula extra cum lobis lanceolatis compluribus 1–1.5 mm longis et villosis ad eos ovarii simulantibus, 5 lobis corollae 1.5 mm longis et latis late ovatis subacutis trinerviosis et perspicue capitae glanduloose puberulis, stylo 2 mm longo glabro, 3 lobis stigmatis 2.5 mm longis 0.3 mm latis recurvatis, anthocarpis 6–7 mm longis et latis infra cuneatis supra hemisphaerics copore 2–3 mm lato albi-puberulentu obovoideo cuneato compresso excepta in basta omnino cum lobis linearibus vel obovatoelegantibus rigidis occlusis eis cum pilis 0.5–1 mm longis, semine 4.2 mm longo 3.3 mm lato 2.2 mm crasso ellipsoideo compresso laevi obscure brunneo lucido, hilo 1.7 mm longo elevato cartilagineo jugis binis labiis in linea simulanti.

DIAGNOSIS OF HOLOTYPE: Herbaceous vine, trailing or climbing; young shoots sparsely pilosulous and the hairs mostly persisting; stems stramineous, angular; internodes 5.5–13 cm long; tendril lateral to the petiole base, 3-forked, the stalk 17–52 mm long, flattened, several-angled, capitae glandular pilosulous, the slender forks spiralling, sparsely capitae glandular pilosulous; petioles 3.5–9 cm long, several-angled, minutely glandular pilosulous; blades 6–10 cm long, 6.5–11.6 cm wide, reniform to cordate, very shallowly but perceptibly palmately 5-lobed, the lobes extending about 1/10 way to the
center, the broad shallow sinuses 6–8 mm deep, the apex abruptly acute, the deep basal sinus U-shaped, the margin subentire but umbonate at the excurrent veinlet ends, texture firm chartaceous, above dark green, and scabrous by the capitate glandular hirsute pubescence from pustulate conic bases, below pale green and densely capitate glandular hirsutulous from white pustulate bases; stamineate panicles 12–17 cm long, capitate glandular hirsutulous, densely so above; peduncle 5.5–12 cm long; pedicels 3–10 mm long, minutely glandular pilosulous; calyx lobes wanting; bud 2–2.3 mm in diameter, oblate globose, densely capitate glandular pilosulous; perianth in anthesis 7 mm in diameter, rotate, apparently white, within capitate glandular puberulous, the tube 1.5 mm in radius, the 5 lobes 2–2.5 mm long, 1.5 mm wide, elliptic, subacute, 3-veined; staminal column 1 mm long; pistillate inflorescences 18–30 mm long, solitary, lateral at a node or together with a stamine one; peduncle 14–22 mm long, capitate glandular hirsutulous; pistillate flowers about 20 to a head, this 10 mm in diameter in flower but 13–15 mm in diameter in fruit; ovary 4 mm long, obovoid, the upper half obscured by long hairy lobes; corolla epigynous, 3.5 mm in diameter, the tube 1.5 mm in diameter, funnelform, short capitate glandular puberulous within, without with several lanceolate lobes 1–1.5 mm long and villous like those of the ovary, the 5 corolla lobes 1.5 mm long and wide, broadly ovate, subacute, 3-nerved, and conspicuously capitate glandular puberulous; style 2 mm long, glabrous; the 5 stigmatic lobes 2.5 mm long, 0.3 mm wide, recurved; anthocarps 6–7 mm long, the upper part hemispheric; seed 4.2 mm long, 3.3 mm, ellipsoidal; young shoots puberulous.

The new epithet is given in honor of the collector, Dr. Charles Harrington Lamoureux (1933–), professor of botany at the University of Hawaii.

**Sicyos semitonsus** sp. nov. (sect. Cladocarpa)

**Diagnosis Holotypi:** Liana herbacea repens vel scandens est, novellis densiter capitate villosis albis catenulatis, caulibus maturis acriter 6-angulosis viridibus vel subrubris et cum pilis simulantibus sed minus densis, internodis 10–20 cm longis cirrhis in nodis lateralisibus 4–5-furcatis pedunculo 28–105 mm longo acriter anguloso compresso capitate glandulo pilosulo catenulato furcisc spiralis et cum pilis simulantibus, petiolis 5–14.5 cm longis angulosis et capitata glandulo divergenti pilulosi albis, laminis 7–12 cm longis et latis reniformibus vadose palmatim 5-lobatis lobis 1/5–1/4 ad centrum extensis sinibus latis vadosis 8–15 mm

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**Fig. 5.** *Sicyos Lamoureuxii* St. John, from holotype. *a,* Fruiting branch, × 1/2; *b,* young shoot, × 1/2; *c,* staminate bud, × 5; *d,* staminate flower, × 5; *e,* pistillate flower, × 5; *f,* anthocarp, × 5; *g,* anthocarp lobe with hairs, × 10; *h,* seed, lateral view, × 5; *i,* seed with hilum, apical view, × 5.
profundis apice subacuminato sinu basali U-formato vel late ita et aperto marginibus cum venulis excurrentibus denticulatis, laminis chartaceis supra obscure viridibus dense scabri-hispidulis ex basibus pustulatis infra densioribus hispidulis. paniculis masculis 15–20 cm longis sparse capitate glandulose pilosulis, pedunculo 8–10 cm longo, pedicelis 3–5 mm longis filiformibus, alabastris 1.5–2 mm diametro oblate subglobosus viridibus capitata glandulose puberulentis, lobis calycis 0.1–0.2 mm longis subulatis, perianthio masculo in flore 5 mm diametro rotato intra et extra capitate glandulose puberulo, tubo 1.3 mm in radio, disco centrali glanduloso 1 mm diametro, 5 lobis corollae 1.7–2 mm longis 1.5–1.8 mm latis deltoideis trinervosis, columna staminalis 1–1.3 mm longa, 5 antheris 0.8 mm longis curvatis, inflorescentia foeminali solitaria in nodo laterali, pedunculo in flore 13–22 mm longo sed in fructu 15–40 mm longo, floribus foeminitis 24–30 in capitulo eo in flore 12 mm diametro sed in fructu 18–21 mm diametro, ovario in flore 4 mm longo dense puberulo, perianthio epigynyno 4 mm diametro, tubo 2 mm diametro infundibuliformi extra divergenti-puberulo albo, 5 lobis corollae 1.5 mm longis 1.5–1.6 mm latis latere ovatis sed ad apicem deltoideis intra 5-nervosis et dense capitate glandulose puberulentis, stylo 1.3 mm longo glabro, 5 (vel 3) lobis stigmatibus 0.7–0.9 mm longis ligulatis sed ad apicem ovatis acutis.

**DIAGNOSIS OF HOLOTYPE:** Herbaceous vine, trailing or climbing; young shoots densely white, capitate glandular, catenate villous; mature stems sharply 6-angled, green or slightly reddish, and similarly but only moderately villous; internodes 10–20 cm long; tendril lateral to a petiole base, 4–5-forked, the stalk 28–105 mm long, sharply angled, flattened, white, capitate glandular, catenate pilosulous, the slender forks spiralling and similarly pilosulous; petioles 3–14.5 cm long, angled, and capitate glandular spreading while pilosulous; blades 7–12 cm long and wide, reniform, shallowly palmately 5-lobed, the lobes extending 1/5–1/4 way to center, the broad shallow sinuses 8–15 mm deep, the apex subacminate, the basal sinus U-shaped or widely so and open, the margin minutely denticate by excurrent umbonate veinlet tips, texture chartaceous, above dark green, closely scabrous hispidulous from white pustulate bases, below similarly but more densely hispidulous; stamine panicles 15–20 cm long, sparsely capitate glandular pilosulous; peduncle 8–10 cm long; pedicels 3–5 mm long, filiform; bud 1.5–2 mm in diameter, oblate subglobose, green, sparsely capitate glandular puberulent; calyx lobes 0.1–0.2 mm long, subulate; stamine perianth in anthesis 5 mm in diameter, rotate, within and without capitate glandular puberulous, the tube 1.3 mm in radius, and with a central glandular disk 1 mm in diameter, the 5 lobes 1.7–2 mm long, 1.5–1.8 mm wide, deltoid, 3-nerved; staminal column 1–1.3 mm long; the 5 anthers 0.8 mm long, curved; pistillate inflorescences solitary, lateral to a petiole base; peduncle 13–22 mm long in flower, but 15–40 mm long in fruit, mostly together with a stamine inflorescence at a node; pistillate flowers 24–30 to a head, this 12 mm in diameter in flower, but 18–21 mm in fruit; ovary in flower 4 mm long, fuzzy hairy; perianth epigynous, 4 mm in diameter, the tube 2 mm in diameter, funneliform, without divergent white puberulous, the 5 corolla lobes 1.5 mm long, 1.5–1.6 mm wide, broadly ovate but deltoid towards the tip, within 5-nerved and abundantly capitate glandular puberulous; style 1.3 mm long, glabrous, the 5 (or 3) stigmatic lobes 0.7–0.9 mm long, ligulate, then near the tip ovate and acute.

**EXPANDED DESCRIPTION:** Anthocarps 9–10 mm long, 5–6 mm wide, cuneiform, the body 3 mm wide, ob lanceoloid, angled, the lower 1/3 densely ascending white pilosulous, the upper part bearing numerous flat, linear ob lanceolate green-tipped rigid ascending lobes 3–4 mm long, these spaced viscid puberulous, but the hairs not concealing the lobes; the body of the anthocarp with the pericarp hard, fibrous, almost woody, closely enclosing the solitary pendulous seed; seed 6 mm long, 4.2 mm wide, compressed obovoid, smooth, shining tawny,

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**FIG. 6.** *Sicyos semitonsus* St. John, from holotype. *a,* Flowering branch, × 1/2; *b,* young shoot, × 1/2; *c,* staminate bud, × 5; *d,* staminate flower, × 5; *e,* pistillate flower and ovary, × 5; *f,* anthocarp, × 5; *g,* seed, lateral view, × 5; *h,* seed with hilum, apical view, × 5.
the hilum 2.7 mm long, like two pairs of slightly open lips in a line, separated.

**HOLOTYPUS:** Hawaiian Leeward Islands, Laysan Island, n. w. end of the lagoon in a flat area with Ipomoea, 19 Sept. 1964, C. R. Long 2,370 (BISH). Other collections with the same data, Long 2,365; 2,368; and 2,369 (Univ. Hawaii) are evidently duplicates and thus isotypes.

**DISCUSSION:** *C. semitonsus* is a member of the section Cladocarpa, as is its closest relative, *S. Lamoureuxii* St. John, of Lisianski and Kure islands, a species with the staminate perianth 7 mm in diameter, the lobes 2–2.5 mm long, elliptic; anthocarps 6–7 mm long, the body cuneate hemispheric; seed $4.2 \times 3.3$ mm, ellipsoid. *S. semitonsus* has the staminate perianth 5 mm in diameter, the lobes 1.7–2 mm long, deltoid; anthocarps 9–10 mm long, the body oblanceoloid; seed $6 \times 4.2$ mm, obovoid.

The new epithet is formed from the Latin *semi-*-, half; and the participle *tonsus*, shaven, and it is given with reference to the fruits which lack the abundant long hairs, but have retained some short hairs, and look half shaven.

**LITERATURE CITED**

