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NEW ORCHIDS FROM CENTRAL AMERICA

BY

CHARLES SCHWEINFURTH

THE FOLLOWING NEW SPECIES from Central America, mostly from Costa Rica, have been proposed as the result of a study of a large collection recently made in Costa Rica.

The arrangement of the genera is in accordance with the Engler and Prantl system of classification.

Malaxis nana *C. Schweinfurth sp. nov.*

Herba nana, epiphytica. Caulis brevis, inferne bulbosus, prope medium bifolius. Folia inaequalia, ovata. Inflorescentia umbelliformis. Flores pro planta magni. Perianthii partes late patentes. Sepala anguste triangulari-lanceolata, perlonge acuminata; lateralibus obliqua. Petala triangulari-linearia. Labellum triangulari-ovatum vel ovato-lanceolatum, longe acuminatum, paene planum. Columna minuta.

Plant dwarf, up to 6.5 cm. high to the tip of the largest erect leaf. Roots fibrous, lanuginose. Stem about 2 cm. long, bulbous-thickened at the base, clothed below with two imbricating sheaths and with the sheathing petioles of the leaves. Leaves two, about opposite, erect or widely spreading, very unequal in size, sessile except for the long-sheathing base, broadly ovate, acute, in the dried plant membranaceous with a prominently carinate mid-

nerve, the larger one about 4.6 cm. long and 2.65 mm. wide. Peduncle (above the leaves) arcuate, about 1.7 cm. long, striate-angulate especially above. Inflorescence umbelliform. Floral bracts triangular-lanceolate, acuminate, up to about 4 mm. long. Pedicels numerous, very slender, with the ovary up to about 1.4 cm. long, narrowly several-winged above. Flowers large for the plant. Perianth segments widely spreading. Sepals and petals membranaceous. Dorsal sepal narrowly triangular-lanceolate, gradually long-acuminate, up to 7.6 mm. long and 1.25 mm. wide near the base, indistinctly 3-nerved below. Lateral sepals asymmetrically triangular-lanceolate, long-acuminate with conduplicate sides above forming a curved apex, up to 8 mm. long and 1.6 mm. wide near the base, 4-nerved below. Petals triangular-linear, long-acuminate, 1-nerved, up to 6 mm. long and 0.5 mm. wide at the base. Lip ovate-lanceolate with the upper third rather abruptly long-acuminate, up to 6.4 mm. long and 2.55 mm. wide near the rounded base, 3-nerved in the lower portion. Column very short and stout, about 1.1 mm. long.

In another collection, *Brenes* (131) 1334, both leaves are spreading, the larger one being about 4.2 cm. long and 2.2 cm. wide. The peduncle is merely flexuous. Dorsal sepal about 6 mm. long and 1.25 mm. wide near the base. Lateral sepals about 6.1 mm. long and 1.2 mm. wide, 3-nerved below. Petals 6 mm. long, about 0.5 mm. wide at the base. Lip about 5.1 mm. long and 2.1 mm. wide near the base, long-acuminate above.

Malaxis nana is distinct from all Middle American species of the genus with regard to its congested habit. It differs from *M. corymbosa* (S. Wats.) O. Ktze. in having a narrower and more gradually acuminate lip. It varies from *M. tenuis* (S. Wats.) Ames in having an umbelliform inflorescence and dissimilar basal portion of the lip.

COSTA RICA, "Bois à San Pedro de San Ramón. Epiphyte, de 7 cm. haut. Alt. 850 m. 27-VI-1925. Infl. pas plus longue que les feuilles." *A.M.Brenes (96) 1301* (TYPE in Herb. Ames No.44337); "Bosquet du Cerro de San Isidro de San Ramón. Alt. 1175 m. 10-VII-1925." *Brenes (131) 1334*.

Pleurothallis membraniflora *C. Schweinfurth*
sp. nov.

Herba nana, epiphytica, caespitosa. Radices fibrosae. Caules graciles, vaginis arectis tubularibus cum ostiis ciliatis omnino obtecti. Folia obovata, in sicco coriacea, marginata. Racemi fasciculati, laxe pauciflori. Flores parvi, membranacei. Sepala dorso carinata. Sepalum dorsale oblongo-lanceolatum, trinervium. Sepala lateralia omnino libera, anguste triangulari-lanceolata, leviter falcata, uninervia. Petala perparva, inconspicua, elliptico-ligulata. Labellum simplex, oblongum, apice basique late rotundatum, trinervium. Columna late bialata.

Plant dwarf, caespitose, up to 4.8 cm. tall. Roots fibrous, numerous, glabrous, as stout as the stems. Stems slender, bearing one or more leaves, up to 5 cm. long (an old stem), commonly 3.3 cm. or less long, closely and entirely invested by usually four to seven tubular nerve-angulate minutely hispid sheaths which terminate in spreading ovate marginate ciliate mouths. Leaves obovate, gradually narrowed to a shortly petioled base; lamina up to 9 mm. long, 4-5 mm. wide, marginate, minutely bilobed and apiculate at the rounded apex, erect, coriaceous, with the apical margins minutely cartilaginous-serrulate. Inflorescences fascicled at the apex of the stems and frequently also at several lower nodes of the stem, loosely up to 4-flowered. Flowers very small, membranaceous. Sepals parallel, about equally long. Dorsal sepal oblong-lanceolate, subacute, concave, about 3 mm. long and 1.5 mm. wide, 3-nerved through the lower half with the nerves prominently carinate on the

outer surface. Lateral sepals entirely free, narrowly triangular-lanceolate, slightly falcate, scarcely 3 mm. long, about 0.9 mm. wide, acute, 1-nerved with a prominent keel on the outer surface. Petals very small and diaphanous, about 1 mm. long and 0.25 mm. wide, about equaling the column, narrowly elliptic-ligulate, acute or subacute, oblique at the apex, 1-nerved through the lower half. Lip simple, oblong, membranaceous, subsessile, about 1.4 mm. long and 0.6 mm. wide, very slightly broader near the base, broadly rounded at base and apex, with three approximate nerves, slightly undulate on the margins. Column inconspicuous, about 1 mm. long, winged on each side throughout.

Pleurothallis membraniflora is vegetatively very similar to *P. Broadwayi* Ames, but is distinct in having minute petals and an entirely simple oblong lip without any thickenings.

COSTA RICA, San Pedro de San Ramón. "29-VII-1935." A.M. Brenes (Herb. Brenes 20.571) (TYPE in Herb. Ames No. 44322.)

***Epidendrum pinniferum* C. Schweinfurth sp. nov.**

Herba robusta. Caules alti, caespitosi, vaginis tubularibus arctis omnino obtecti. Folia numerosa, disticha, elliptica vel elliptico-lanceolata. Inflorescentia terminalis, perbrevis, subsessilis, basi bifurcata; rami pauciflori, decurvati. Flores subcarnosi. Sepala petalaeque late patentia. Sepala oblongo-elliptica. Petala cuneato-spathulata. Labellum columnae valde adnatum, trilobatum; lobi laterales subquadrato-dolabriformes, patentes; lobus medius sessilis, late flabellatus, apice truncatus, retusus, minute apiculatus. Columna apice truncato denticulata.

Plant tall, doubtless epiphytic. Roots fibrous, stout. Stems caespitose, about 73 cm. tall, terete, entirely concealed by close tubular sheaths which are leaf-bearing except in the lower portion, the sheathed stems up to 6 mm.

in diameter. Leaf-sheaths densely dark-verrucose. Leaves numerous, distichous, elliptic to elliptic-lanceolate, 7.6–11 cm. long, 1.5–2.8 cm. wide, acute and more or less complicate at the apex, cuneate toward the base, many-nerved, chartaceous in the dried specimen. Inflorescence very short, terminal, subsessile, bifurcate at the base, subtended by a lanceolate foliaceous bract; the two branches of the rachis apparently stout, recurved, 2-to 4-flowered, about 2.7 cm. or less long. Flower medium-sized, perianth segments reflexed-spreading, rather fleshy. Dorsal sepal oblong-elliptic, about 1.45–1.6 cm. long and 6–7 mm. wide, obtuse or subacute, many-nerved. Lateral sepals similar, slightly asymmetric, about 1.55–1.68 cm. long and 7 mm. wide, acute, dorsally slightly carinate with the keel much thickened at the apex. Petals cuneate-spatulate, more or less asymmetric near the apex, about 1.4–1.5 cm. long and 5.5–6 mm. wide above, obtuse or subacute. Lip adnate to the column about to the middle of the latter, deeply 3-lobed, suborbicular-quadrate in outline, abruptly cuneate below and long-decurrent on the column to its base, retuse at the apex, about 1.68 cm. long from the base of the column to the apex of a terminal lobule and 1.75–1.9 cm. wide across the lateral lobes; lateral lobes subquadrate-dolabriform, spreading, irregularly crenulate or subdentate on the outer margins; mid-lobe sessile, broadly flabellate, abruptly retuse and apiculate forming a pair of divergent lobules with truncate-rounded apex and irregular-undulate sides, about 1.48 cm. wide across the lobules; disc minutely verrucose except near the margins, obscurely bicallose at base, with the mid-nerve conspicuously callose-thickened especially near the apex; two lateral nerves on each side are somewhat thickened. Column short, stout, infundibuliform, about 8 mm. long; the truncate apical margin denticulate and abruptly thrice cut posteriorly, producing

a pair of subquadrate-oblong lobules. Pedicellate ovary slender, about 3.3 cm. long.

Epidendrum pinniferum suggests several other species. It differs from *E. cnemidophorum* Lindl. in having an abbreviated subsessile inflorescence and much broader mid-lobe of the lip. It is dissimilar to *E. Edwardsii* Ames in having shorter broader leaves, a nearly sessile inflorescence and much larger flowers.

The specific name, meaning fin-bearing, is in allusion to the lobes of the lip (particularly the mid-lobe) which simulate the fins of a fish.

COSTA RICA, " 'Matamba' (lugar situado entre Pirris y San Jerónimo). 14-V-1936." *Alfredo Brade 335* (TYPE in Herb. Ames No. 44326.)

***Maxillaria campanulata* C. Schweinfurth sp. nov.**

Herba magna, crassa, caulescens. Caulis vaginis distichis dense imbricantibus omnino obtectus. Pseudobulbi distantes, valde complanati, anguste ellipsoidei, monophylli. Folia ligulata. Inflorescentiae numerosae, uniflorae, singulae in vaginarum axillis. Flos nutans, campanulatus. Sepala oblanceolato-oblonga, acuminata. Petala similia, minora. Labellum parvum, apice trilobatum; loborum lateralium pars libera porrecta triangulari-ovata, rotundata; lobus medius semiorbicularis, concavus; discus in medio callo apice trilobulato ornatus.

Plant apparently tall and stout (stem incomplete in our specimen), caulescent. Pseudobulbs ancipitous in the dried specimen, narrowly ellipsoid, about 4.5–7 cm. long, up to 2.4 cm. wide, monophyllous, distichously surrounded at base by two or three pairs of spreading leaf-bearing sheaths, about 17.5 cm. apart on the stem. Stem entirely concealed by distichous imbricating strongly complanate sheaths of which those on the younger growths bear small ovate-oblong conduplicate deciduous blades. Leaves ligulate, gradually narrowed into an in-

distinct channelled conduplicate petiole, up to about 38 cm. long and 2.8 cm. wide, rather abruptly acute, chartaceous, with the mid-nerve sulcate above and conspicuously carinate beneath. Inflorescences 1-flowered, numerous, solitary in the axils of the complanate distichous sheaths of the stem; peduncles short, arcuate, about 4.9 cm. long, entirely concealed below by several imbricating complanate nervose sheaths. Pedicellate ovary slender, arcuate-decurved, about 1 cm. long, subtended by an ovate concave abruptly acute bract which is about 2.1 cm. long. Flower nodding, campanulate. The upper portion of the sepals and petals is more or less spreading. Dorsal sepal oblanceolate-oblong, about 2.2 cm. long and 7.2 mm. wide above the middle, acuminate, many-nerved. Lateral sepals similar, about 2.35 cm. long and 8 mm. wide. Petals similar to the sepals but smaller, acuminate, about 1.9 cm. long and 5 mm. wide. Lip relatively small, sessile, slightly recurved and longitudinally tubular-involute in natural position, 3-lobed at the apex, when expanded the lamina is suborbicular-obovate, about 9 mm. long and 7.6 mm. wide; free portion of lateral lobes porrect, triangular-ovate, broadly rounded; mid-lobe semi-orbicular, concave, 2 mm. long, 4 mm. wide, separated from the lateral lobes (which it scarcely exceeds) by a deep sinus. Center of disc provided with a subquadrate apically 2- or 3-lobulate callus and near the base in the middle with several inconspicuous warts. Column stout, slightly arcuate, flattened on the anterior surface, about 7 mm. long.

Another collection (Brenes 178) shows a cluster of fibrous glabrous roots. Its single pseudobulb is about 7.5 cm. long and 2.9 cm. wide. The leaf on the pseudobulb is about 45.2 cm. long and 3 cm. wide. The floral bract is about 2.3 cm. long, and the parts of the flower are a little larger than in the type collection.

The specific name is in allusion to the bell-shaped flower.

Maxillaria campanulata differs from *Camaridium latifolium* Schltr. in having the pseudobulbs surrounded by leaf-bearing sheaths and in having a much smaller lip which lacks the central beard on the disc. It differs from *C. costaricense* Schltr. in bearing pseudobulbs and in having a lip without the conspicuous basal band of papillae.

COSTA RICA, "Tablazo? 14-X-1935." Salvador Jiménez C. 315 (TYPE in Herb. Ames No. 44323.)

***Oncidium graciliforme* C. Schweinfurth sp. nov.**

Herba epiphytica, gracilis. Rhizoma crassum, lignosum. Pseudobulbi complanato-cylindracei vel anguste ellipsoidei, monophylli, utrinque foliis fulti. Folia ligulato-lineararia. Inflorescentiae perlaceae paniculatae, cum ramis brevibus. Perianthii partes late patentes. Sepala similia, oblanceolato-spathulata, apice rotundata. Petala oblongo-spathulata. Labellum panduratum, in circuitu subquadratum, apice retuso et leviter apiculato, basi callo apice dentato ornatum. Columna brevis, crassa, apice bialata.

Plant slender with a much thickened woody rhizome which produces numerous stout fibrous roots and, in our specimens, terminates in a pseudobulb. Pseudobulb cylindric to narrowly ellipsoid, about 3 cm. long, strongly complanate and longitudinally striate-sulcate in the dried specimen, monophyllous, distichously surrounded by two or three pairs of conduplicate leaf-sheaths of which the largest (inner) sheath is 9 cm. long. Leaves linear-ligulate, about 14–23.5 cm. long, 10–12 mm. wide, often conduplicate throughout, unequally bilobed and apiculate at the rounded apex, chartaceous in the dried specimen. Inflorescence a long lax panicle arising from the base of the pseudobulb, up to about 51.6 cm. long, more

or less surpassing the leaves; branches short, diffusely forking, apparently up to 8-flowered. Flowers lax, membranaceous, parts of the perianth spreading. Lateral sepals free, oblanceolate-spatulate, slightly asymmetric, minutely and obliquely retuse at the rounded apex with a dorsal subapical mucro, about 8.8 mm. long and 2.9 mm. wide near the apex, 1-nerved throughout and 3-nerved to above the middle, with the mid-nerve dorsally carinate to above the middle. Dorsal sepal very similar, about 8.3–8.8 mm. long and 3–3.2 mm. wide above. Petals asymmetrically spatulate-oblong, minutely acute or slightly emarginate at the rounded apex, about 9–10 mm. long and 4–4.5 mm. wide near the apex, 3-nerved to above the middle with forking veins. Lip subquadrate-pandurate in outline, retuse and apiculate in front, truncate or slightly cordate at base, about 11.8–13 mm. in greatest length; basal part transversely oval, about 9.1–9.8 mm. broad, semiorbicular-dilated on each side; anterior part separated by an isthmus about 4 mm. wide, abruptly reniform, about 10–11.5 mm. wide, consisting of two suborbicular lobules. Disc of lip with a basal obovate shortly pubescent callus which is 3- to 5-dentate at the apex. Column short, stout, arcuate, about 4.2 mm. long (without the anther), provided below with a pair of porrect, fleshy semioblong or semielliptic pubescent cheeks and above with a pair of very short and broad subdolabriform wings which are irregularly lacerate or bilobed. Anther incumbent, obliquely conic, lying on the prominent triangular rostellar process. Pollinia two, complanate-suborbicular.

Oncidium graciliforme appears to be closely allied to the polymorphic *O. obryzatoides* Kränzl. Its claim to distinctness lies chiefly in its relatively very slender habit and vegetative parts as well as in the transversely oval basal part of the lip.

PANAMA, Chiriqui. Epiphyte at 4000-5000 feet altitude. March 1923. *C.W.Powell 3227* (Referred to *Powell 157*). (TYPE in Herb. Ames No. 27603.)

Dichaea gracillima *C.Schweinfurth sp. nov.*

Herba pergracilis, silvicola. Caules caespitosi vel prope basim ramosi, tenues, vaginis foliorum omnino obtecti, parte basali plus minusve defoliati. Folia numerosa, disticha, anguste linearia, erecto-patentia, ad vaginas imbricantes apice patentia articulata. Inflorescentiae numerosae, uniflorae, breves, singulae in foliorum axillis. Sepalum dorsale elliptico-lanceolatum, concavum, acutum. Sepala lateralibus ovato-lanceolata, valde concava, acuminata. Petala ovato-elliptica, acuminata. Labellum in circuitu late obovatum, parte basali subquadrata, parte anteriore abrupte anchoriformi-dilatata cum auriculis brevibus retrorsis.

Plant very slender, caespitose or branching near the base. Roots fibrous, nearly as stout as the stems (where naked). Stems slender, erect or arcuate, up to about 30 cm. long, entirely concealed by imbricating leaf-sheaths which are leafless and waste into fibres near the base in old plants. Leaves articulated, distichous, numerous, narrowly linear, up to 4.7 cm. long and 2 mm. wide, shortly acuminate and apiculate, erect-spreading, commonly conduplicate below the middle. Inflorescences numerous, 1-flowered, solitary in the leaf-axils; peduncles about 1 cm. or more long, filiform, concealed at the base by two imbricating cylindrical scarious sheaths and terminating in a scarious shallowly infundibuliform acute bract which encloses a linear bracteole. Flower small, submembranaceous. Dorsal sepal elliptic-lanceolate, strongly concave, about 5 mm. long and 2.2 mm. wide, acute, 3-nerved, dorsally carinate at the apex. Lateral sepals ovate-lanceolate, strongly concave, asymmetric, about 5 mm. long and 2.5 mm. wide below the middle, acuminate, dorsal-

ly unicarinate, 4-nerved with the anterior nerve extending only through the lower half. Petals ovate-elliptic, acuminate with a complicate apex, about 4.2 mm. long and 2.1 mm. wide, 3-nerved. Lip obovate in outline, concave, abruptly anchor-shaped-dilated near the broad apex, abruptly acute, shortly clawed, about 4 mm. long, 7-nerved; lower portion of lamina subquadrate, abruptly rounded at the base, about 2 mm. long and 2.1 mm. wide; anterior portion abruptly dilated with a short retrorse triangular-lanceolate lobule on each side, nearly 4 mm. wide when expanded. Column very short and stout, about 1.6 mm. long, with an inconspicuous erect shallowly rounded infrastigmatic process. Pollinia four, in two unequal pairs, complanate-subpyriform.

The habit of this species suggests a very slender form of *Dichaea Powellii* Schltr., but the very narrow leaves and abruptly subquadrate basal portion of the lip are diagnostic.

The description of the flower was made from a single (perhaps immature) flower in which the segments were connivent.

COSTA RICA, Piedades de San Ramón. "Bois. Alt. 1100 m. 26-X-1925." *A.M. Brenes* (274) 1459 (TYPE in Herb. Ames No. 45278.)



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